CARLEX

OF

NEWFOUNDLAND

ALEXANDER ROBERTSON

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ABSTRACT

This book is an identification manual for 95 species and 43 varieties of carices found in Newfoundland. A key, descriptions, distribution maps and notes on the general worldwide distribution, habitats and forage value is provided. More than 100 plates contains over 1000 drawings of plant structures to aid in identification of species.

RÉSUMÉ

Guide d'identification de 95 espèces et 43 variétés de carex qu'on retrouve à Terre-Neuve. Il contient une clé, des descriptions, des cartes de répartition et des observations générales sur la répartition mondiale, les habitats et la valeur fourragère de cette plante. Plus de 100 tableaux contenant au-delà de 1 000 dessins permettent au lecteur d'identifier les espèces.

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PREFACE

Carex is one of the most common genera, but also one of the least studied. There are roughly 1800 species of Carex worldwide, the vast majority in the middle and higher latitudes of the Northern Hemisphere. North America alone has roughly 600 species and in Newfoundland I have recognized 95 species.

I began studying Carex for two basic reasons: Firstly, its complex taxonomic problems provided me with a formidable challenge; and secondly, in my reviews of ecological literature I was rather surprised by the rather oblique references to Carex. The phrase 'various Carex spp.' still pervades much of ecological literature, even in the most grandiose of phytosociological treatments. In the mid-latitudes and subarctic, Carex is such an ubiquitious plant that, to ignore it, is a serious omission. Carices are a dominant food source for Caribou and other large and small wildlife and also for sheep and cattle. As a strongly hemerophilic species it plays a significant role in revegetating wildland sites disturbed by logging, all-terrain vehicles and other human activities. Clearly, Carex is a pervasive genus in northern ecosystems.

Taxonomically, the genus Carex is considered to be one of the most perplexing; a reputation which it justly deserves. Its reputation for hybridizing is probably greatly exaggerated to the extent that most botanists are intimidated by the complex keys that exist. But, when studied in a regional context, one soon learns that Carex is not quite so formidable, except for one or two sections like Stellulatae and Ovales.

The few classical works on Carex have been written mostly by scholars with training in disciplines other than botany. These include the monographs by Francis Boott (1858-67), a medical doctor, the Reverend Georg Kukenthal (1909), and Kenneth K. Mackenzie (1931-35), the corporal lawyer. Although outdated, their works are still the standard references. Following that tradition this book can best be described as the result of a very serious hobby. I certainly hope it will have some lasting value; for although nomenclature may change with the tides of academia, the shape of a plant and its organs, as represented in the illustrations, will not.

Essentially, this book represents little more than half of an original manuscript written in 1974. Despite the generous offer of the Canadian Forestry Service to publish the original manuscript in its entirety, I thought it best to publish this section for general use and the remaining, more specialized sections, in journals or information reports. In fact, I have already published a section on the history of the classification of caricology in Taxon, Vol. 28: 535-548 (1979).

Most of the preliminary research and laboratory work for this book was done in 1973-74 at the Agnes M. Ayre Herbarium, Memorial University of Newfoundland. I also availed of the excellent opportunity to collect and observe carices extensively throughout Newfoundland during the course of my work for the Canadian Forestry Service. The illustrations are based entirely on Newfoundland from my own collection plus those in the Agnes M. Ayre Herbarium and other herbaria outside of Newfoundland which I visited. Other herbaria included the National Herbarium and Canada Agriculture Herbarium in Ottawa, Montreal Botanical Institute, British Museum in London, Glasgow University Herbarium, and, all too briefly, Uppsala Herbarium in Sweden, and the Botanical Museum in Helsinki, Finland. Some rare specimens were borrowed from Harvard University Herbaria, the British Museum and the Botanical Museum, Helsinki. I am indebted to the Curators and scientists of these fine institutions.

During my forestry travels outside Newfoundland I also availed of the opportunity to observe Carex in Portugal, Iceland, Sweden, Finland, Britain, Northeastern United States and most Provinces of Canada. On the whole, species found elsewhere are taller and much less robust than their Newfoundland representatives. The more rugged stature of Newfoundland plants is reflected in my descriptions and illustrations. Also, it is apparent from my travels abroad that Newfoundland reflects a substantial number of variants that have not yet been studied.

In this book I have recognized 95 species and 43 varieties. There has, of course, been many hybrids reported from Newfoundland, the majority of which appear putative since they lack validation. The key is based on floral characteristics intended as a rough guide to be used in conjunction with illustrations. Except for a few single-spike species or those appearing to be single-spiked, the key progresses from one group of Carex species to another in much the same order as the taxonomic sections, i.e. STELLULATAE, OVALES, etc., in the species description. Thus, it is a key for taxonomic sections in general as well as for species. Note, however, the word 'section' at the head of each part of the key is a convenient label only and does mean the same as a 'taxonomic section.' In practice, I found that familiarization with the main characteristic of each section and the general trend in the book from simple to more complex sections allows one to dispense with the key and make direct comparison between the plates for each species.

This book will help you identify almost every Carex you will find in Newfoundland. But if you are a serious collector, you will always find a few specimens which cannot be identified reliably, even by specialists, using this book or any other. The reason is simply that knowledge of Carex in general is much too fragmentary to account for all the variations that occur in Newfoundland and elsewhere. Besides, nature's defiance of human logic is what makes the taxonomy of Carex such a formidable challenge.

Alexander Robertson
St. John's, Nfld. 1974

INTRODUCTION

This book contains an illustrated key, descriptions, illustrations and distribution maps of 95 species found in Newfoundland. Notes on the general worldwide distribution, habitats and forage value is also provided.

The distribution maps are based on herbarium specimens and field studies. Obviously, the use of dot maps tends to underestimate the total distribution of the more common species in Newfoundland. Most carices benefit from disturbance caused by such human activities as logging, construction of roads and power lines, and even trails made by all-terrain vehicles. Consequently, carices in general have tended to spread rather quickly throughout Newfoundland. Environmentally, this is fortunate since, along with other sedges, carices play a significant role in revegetation of disturbed sites. From a biogeographical viewpoint, however, large scale changes to the environment by natural resource exploitation make it difficult to provide a realistic distribution map for many species.

Carices are important forage plants for wildlife and farm livestock. The vast herds of Caribou that range over much of Canada depend on carices as a major food source on their summer and winter grounds. Much less attention has been given to the forage value of carices to other animals and birds. A close inspection of small birds nests will often reveal the marcescent leaves of carices used in its construction. I have also observed birds and small rodents feeding on seeds of carices. Moose and snow shoe hare browse on carices and this is especially noticeable on the Avalon Peninsula. While there has been considerable research done on the nutritional aspects of carices in the Arctic, central Europe and parts of the Rocky Mountain Range, there has been very little such research done elsewhere.

In cool, humid climates carices are often a major constituent of pastures. Around Lamaline, on the south shore of Newfoundland, 'sedge bogs' dominated by Carex rostrata are still managed. In this region, with its high rainfall, hay from 'sedge bogs' has one advantage over grass, in that it is resistant to mold and can be stored with a high moisture content. Farming sedge bogs is an age-old tradition dating back to the early Greeks and is still practiced extensively in Lapland to provide winter fodder for reindeer. Along the shoreline Carex-dominated salt-marshes are almost always heavily browsed by cattle, sheep and horses. Even for the human palate, the succulent radix of some carices is a delicacy; e.g., the fleshy radix of Carex rostrata looks a little like asparagus and tastes like hazelnut.

Morphologically, carices are grass-like, hence their ancient colloquial name 'reed grass'. The color of the basal sheaths varies from purple to vinous, brown or stramineous. Short basal leaves are often marcescent; i.e., they persist throughout the winter and decay slowly. Others decay rapidly or become fibrous with only the vascular strands remaining.

Diagnostically, the inner-band and ligule of the sheath is useful for distinguishing between two very similar species. Figure 1 shows some variations of the inner-band and ligule. The color of leaves varies from greyish-green to lush-green, fulvous or stramineous, and occasionally, glaucous-green. The leaves can be dull or lustrous but generally rough to touch, on account of the minute siliceous barbs, and a few are piloseglandulose. Leaf-venation is parallelodromous and, in some species, septate-nodulose. The margins of leaves are almost always minutely serrulate for all, or part, of their length. The transverse section of leaves varies from broad and flat to filiform or involute. Five terms have been used to describe the transverse section of leaves; they are: flat, plicate, conduplicate, involute and canaliculate. These basic characteristics are illustrated in figure 2.

For simplicity, unless otherwise stated, the term 'culm' is used in a restrictive sense referring to the stalk supporting the inflorescences. Occasionally,culm refers to sterile shoots. Culms are described as being phyllopodic (leaves mostly basal) or aphyllopodic (basal leaves bladeless or shortened). The transverse section of a culm is almost always triangular - a feature which distinguishes carices from grasses and other sedges. The sides of the triangle can be either concave or convex, smooth or rough, and the angles can be rounded or sharp and wing-like. The central cavity is given as a diagnostic feature but is not always reliable because the size of the cavity varies with the age and position on the culm. In all cases I have taken transverse sections from mature culms at roughly midway between the sheath and base of the inflorescence.

Rhizomes are either monopodial or sympodial. Shoots from monopodial rhizomes arise singly or in pairs at the end of creeping rhizomes. The majority of Newfoundland carices have sympodial rhizomes which can be divided into three types: a) stoloniferous plants with a tendency to form mats rather than tufts; b) stoloniferous plants with a tendency to form tufts rather than mats; and c) cespitose plants lacking stolons. Figure 3 illustrates a monopodial rhizome and the three basic types of sympodial rhizomes.

The organs which make up the inflorescence, upon which I place the greatest emphasis, are profusely illustrated throughout the book. Figure 4 provides a key to the various floral structures.

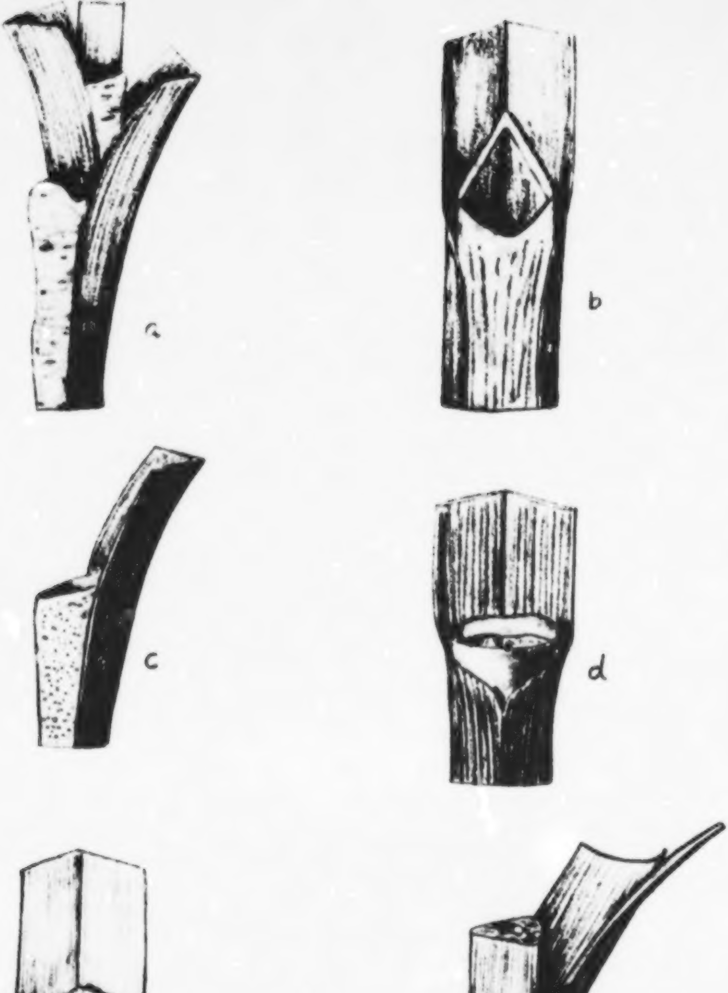


Figure 1. Variations of the inner-band and ligule. a) lingulate inner-band; b) concave inner-band and acute ligule; c) straight inner-band; d) tubular inner-band; e) V-shaped, ladder-fibrillose inner-band, ligule broader than long; f) prolonged inner-band.

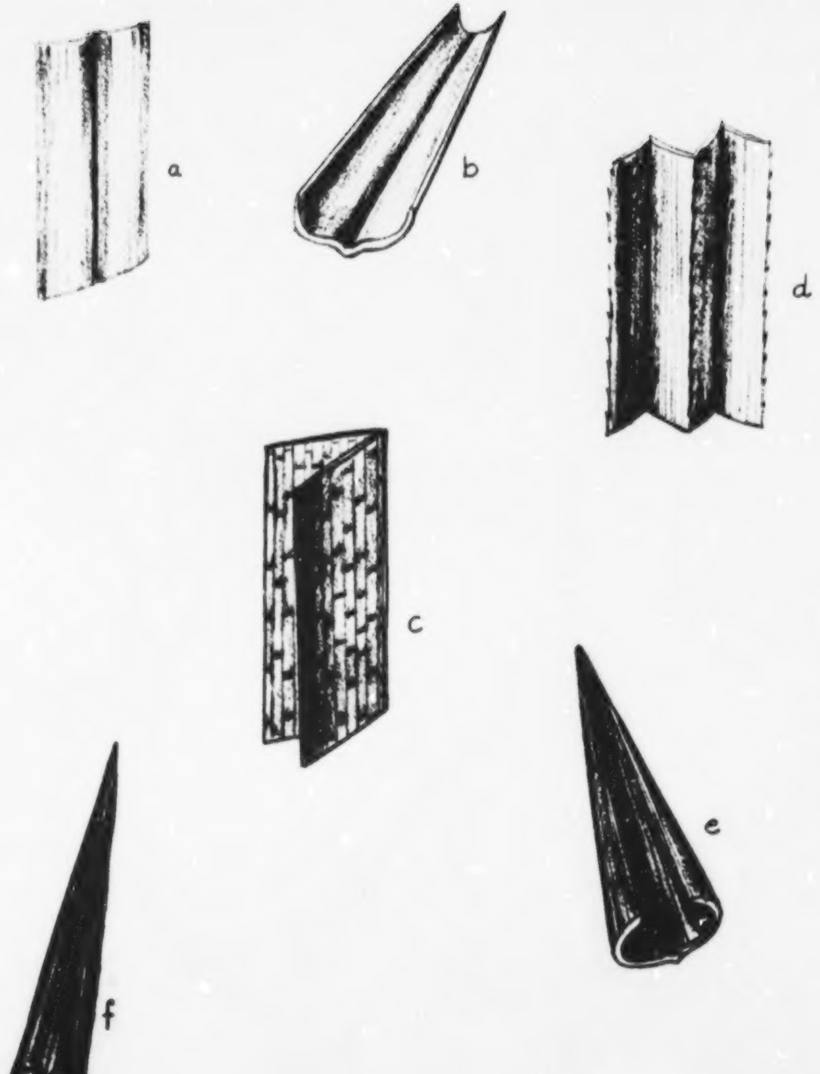


Figure 2. Transverse section of leaves.
a) flat; b) canaliculate; c) plicate (and septate-nodulose);
d) conduplicate; e) involute; f) bristle-like.

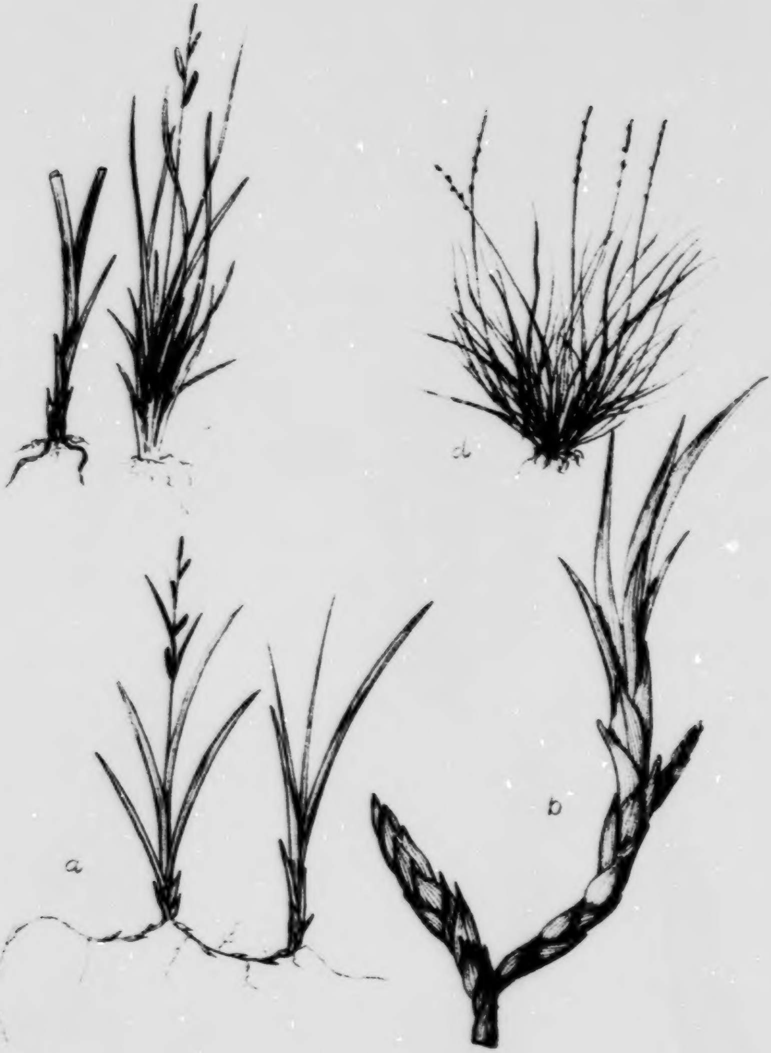
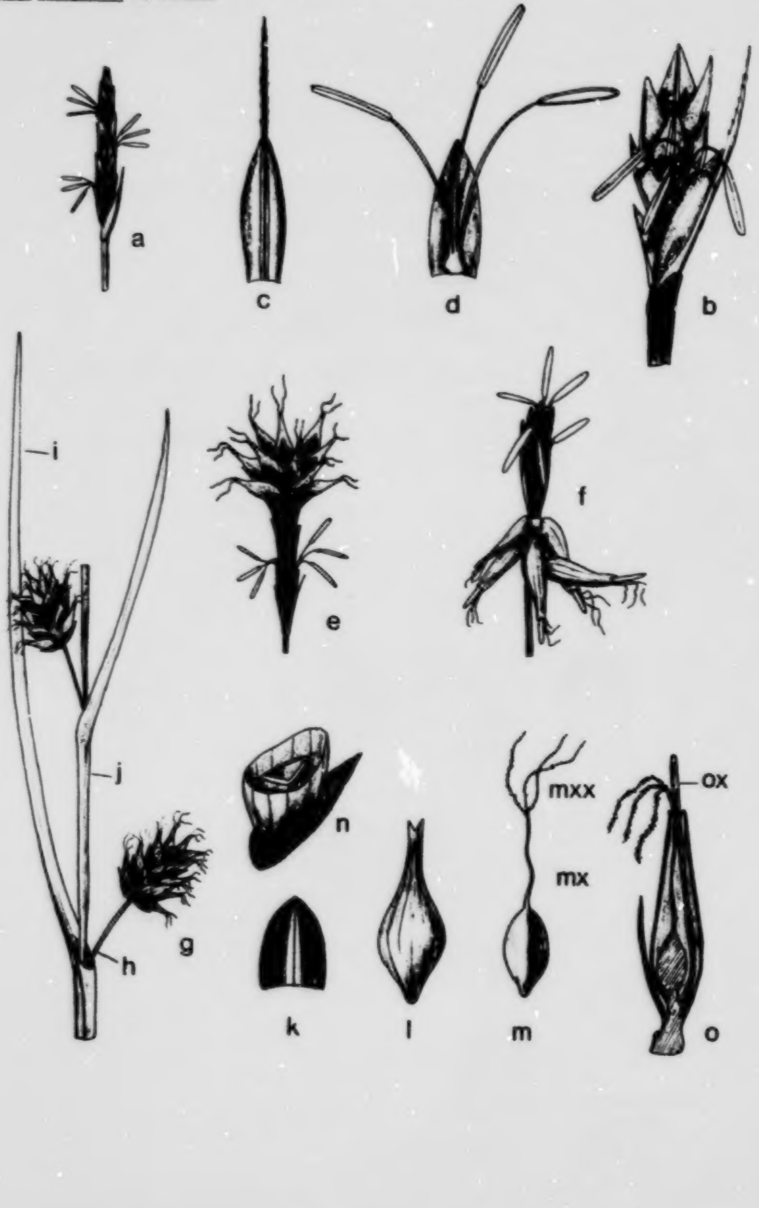


Figure 3. Rhizome types.
a) monopodial rhizome of *Carex hougtonii*; b) sympodial rhizome of *C. bigelowii*, tends to form mats rather than tufts; c) sympodial rhizome of *C. lenticularis*, tends to form tufts rather than mats; d) sympodial rhizome of *C. brunnescens* with a ceapitose habit and short stolons.

Figure 4. Floral Structures of *Carex*.
a) Staminate spike; b) lower part of staminate spike with subtending bract; c) dorsal view of bract; d) staminate scale with anthers; e) gynaecandrous spike; f) androgynous spike; g) pistillate spike; h) peduncle; i) foliaceous bract; j) bract sheath; k) pistillate scale; l) perigynium; m) achene; mx) style; mxx) stigma; n) transverse section of perigynium showing achene; o) longitudinal section of the flower of *Carex microglochin*; ox) rachilla.



KEY TO CAREX SPECIES BASED ON FLORAL STRUCTURES

SECTION 1 - Spikes, solitary

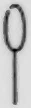
SECTION 11 - Distigmatic; spikes several, sessile

SECTION 111 - Distigmatic; spikes several, peduncled, more than 2 cm long

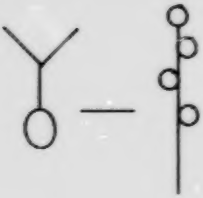
SECTION 1V - Tristigmatic; body of perigynia hirsute or ciliate scabrous on ribs

SECTION V - Tristigmatic; perigynia glabrous

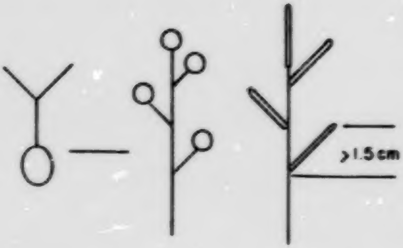
SECTION I



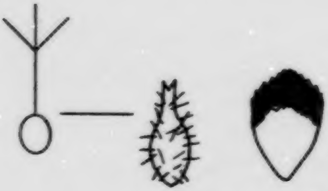
SECTION II



SECTION III



SECTION IV



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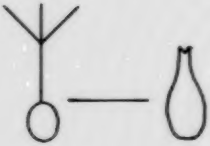


SECTION I

SPIKES SOLITARY, (appearing solitary in one species, C. glacialis)

1a Styles bifid

2a Rachilla present .... C. CAPITATA

2b Rachilla aborted .... C. GYNOCRATES

1b Styles trifid

3a Spike peduncled, usually unisexual, perigynia pubescent .... C. SCIRPOIDEA

3b Spike sessile, androgynous

4a Perigynia reflexed, stramineous, lanceolate, more than 5.0 mm long

5a Rachilla conspicuous .... C. MICROGLOCHIN

5b Rachilla aborted .... C. PAUCIFLORA

4b Perigynia ascending, less than 5.0 mm long

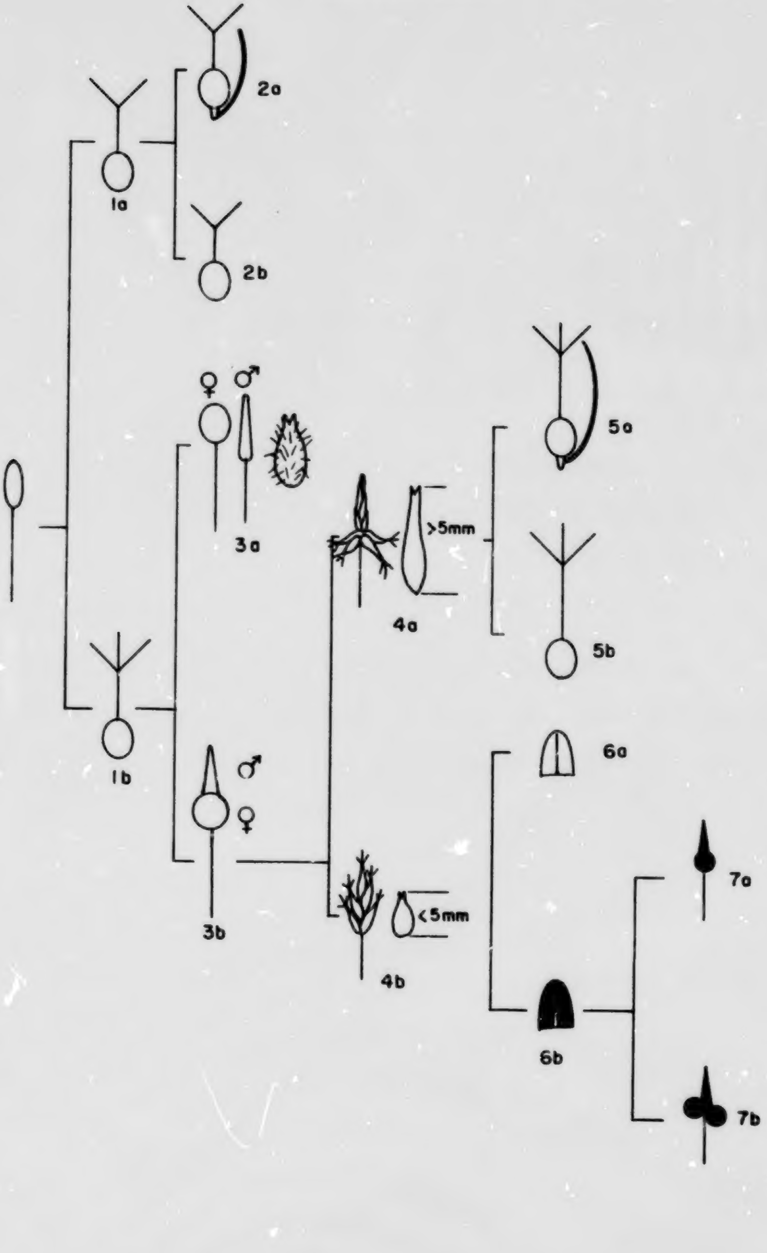
6a Scales pale colored, ovate, perigynia yellowish .... C. LEPTALAE

6b Scales dark, broadly ovate-orbicular

7a Perigynia olivaceous, spike solitary .... C. RUPESTRIS

7b Perigynia suffused with purple, 1-3 inconspicuous spikes .... C. GLACIALIS var. TERRAE-NOVAE

SECTION I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4a
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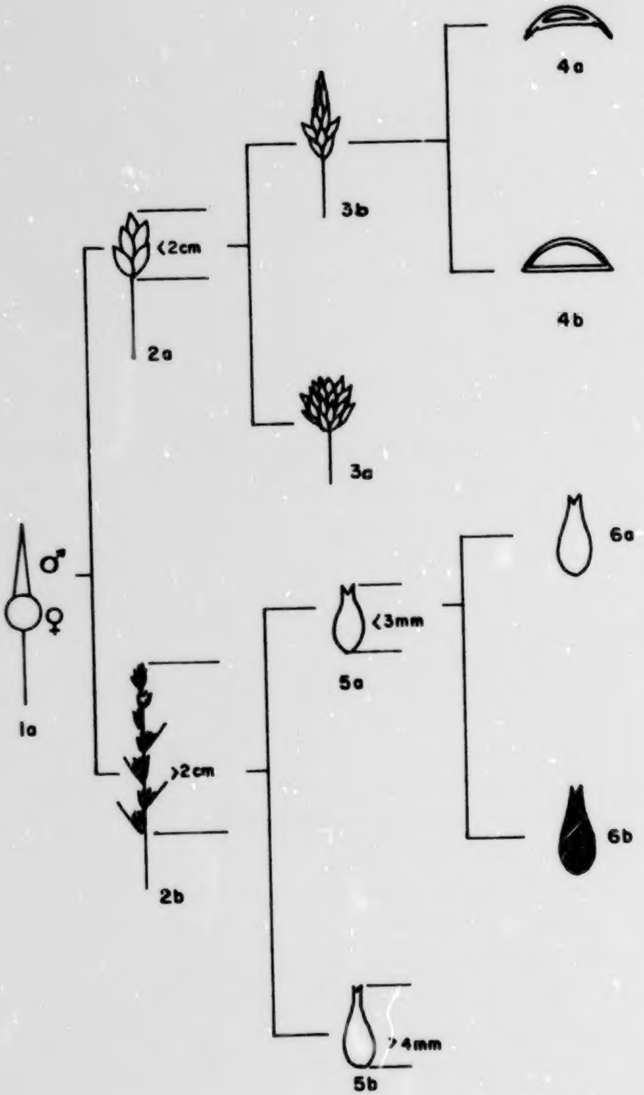
5b
1b
6a
♂
♀
3b
7a
<5mm
4b
6b
7b

SECTION II

Sub-section II(a)

- 1a SPIKES ANDROGYNOUS
  - 2a Head appearing solitary
    - 3a Spikes aggregate, in a globose head, perigynia reflexed .... C. MARITIMA
    - 3b Spikes approximate, in an ellipsoid head, perigynia ascending
      - 4a Perigynia wing-margined, dark brown .... C. CHORDORRHIZA
      - 4b Perigynia not wing-margined, stramineous .... C. LANGEANA
  - 2b Head paniculate-spiciform
    - 5a Perigynia abruptly contracted to beak, 2.0-3.0 mm long
      - 6a Perigynia stramineous, achene pale-green .... C. VULPINOIDEA
      - 6b Perigynia dark-brown, achene reddish-brown .... C. DIANDRA
    - 5b Perigynia tapering into beak, 4.0-5.0 mm long .... C. STIPATA

SECTION II (a)


4a
3b
<2cm
4b
2a
3a
6a
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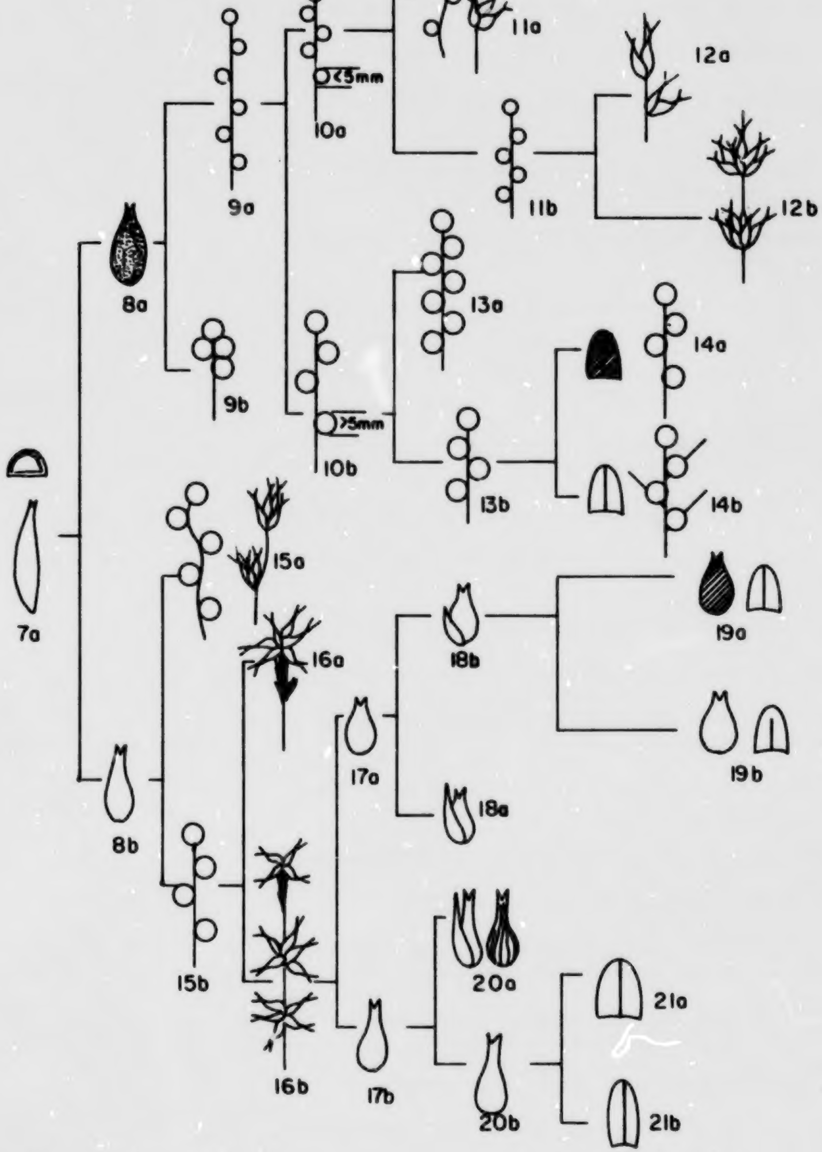
<3mm
5a
1a
>2cm
6b
2b
>4mm
5b

Sub-section II(b)

- 1b SPIKES GYNECANDROUS
  - 7a Perigynia biconvex
    - 8a Perigynia puncticulate
      - 9a Inflorescence with 2-many spikes
        - 10a Spikes usually less than 5 mm long, perigynia inconspicuous
          - 11a Spikes 1-3, 1-5 flowered ....C. TRISPERMA
          - 11b Spikes 3-8
            - 12a Spikes 1-2 flowered ....C. DISPERMA
            - 12b Spikes 3-10 flowered ....C. BRUNNESCENS
        - 10b Spikes more than 5 mm long, perigynia conspicuous
          - 13a Spikes 5-8, scales silvery-hyaline ....C. CANESCENS
          - 13b Spikes 1-5
            - 14a Scales castaneous, bracts inconspicuous ......C. BIPARTITA
            - 14b Scales fulvous, lower bract exceeding spike ..C. MACKENZIEI
      - 9b Inflorescence of 1-4 contiguous spikes ....C. TENUIFLORA
    - 8b Perigynia puncticulate
      - 15a Head flexuous, perigynia loosely-ascending ....C. DEWEYANA
      - 15b Head straightish, perigynia echinate
        - 16a Spikes usually appearing solitary but with inconspicuous lateral spike, sometimes solitary ....C. EXILIS
        - 16b Spikes distinctly 2 or more
          - 17a Beak less than 1/3 as long as body
            - 18a Scales as long as perigynia ....C. STERILIS
            - 18b Scales 1/2-2/3 as long as body of perigynia
              - 19a Perigynia olive-green ....C. INTERIOR
              - 19b Perigynia brown, midrib evanescent near summit..C. WEIGANDII
          - 17b Beak 1/2 as long as body
            - 20a Perigynia ovate abruptly narrowed to a slender beak nerved on both surfaces, scales exceeding body ....C. CEPHALANTHA
            - 20b Perigynia lance-ovate, tapering into a broad beak
              - 21a Scales broadly-ovate, equaling body of perigynium ....C. ANGUSTIOR
              - 21b Scales narrowly ovate, shorter than body of perigynium, beak as long as body of perigynium ....C. ECHINATA

SECTION II (b)



<5mm
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7a
8b

Sub-section II(c)

7b Perigynia scale-like, or thin concavo-convex

22a Scales equaling or concealing perigynium

23a Scales silvery-hyaline, heads arching and moniliform

24a Spikes brown to ferruginous, perigynia nerveless .... C. PRATICOLA

24b Spikes whitish to silvery-brown, perigynia nerved .... C. SILICEA

23b Scales fulvous-ferruginous, heads dense or moniliform

25a Perigynia very thin, achene brown with thick straightish style .... C. LEPORINA

25b Perigynia concavo-convex, hard, achenes brown with slender flexuous style

26a Head of densely crowded, olivaceous, spikes .... C. ADUSTA

26b Head moniliform, flexuous, spikes bronze .... C. AENEA

22b Scales shorter or concealed by perihynium

27a Perigynium not obviously distended over achene

28a Spikes stramineous, lustrous, perigynia 4.0 - 7.0 mm long .... C. SCOPARIA

28b Spikes green or dull brown, perigynia 3.0 - 5.0 mm long .... C. PROJECTA

27b Perigynium obviously distended over achene, firm

29a Perigynia less than 2.0 mm broad

30a Spikes approximate, perigynia less than 1.0 mm broad, narrowly-lanceolate .... C. CRAWFORDII

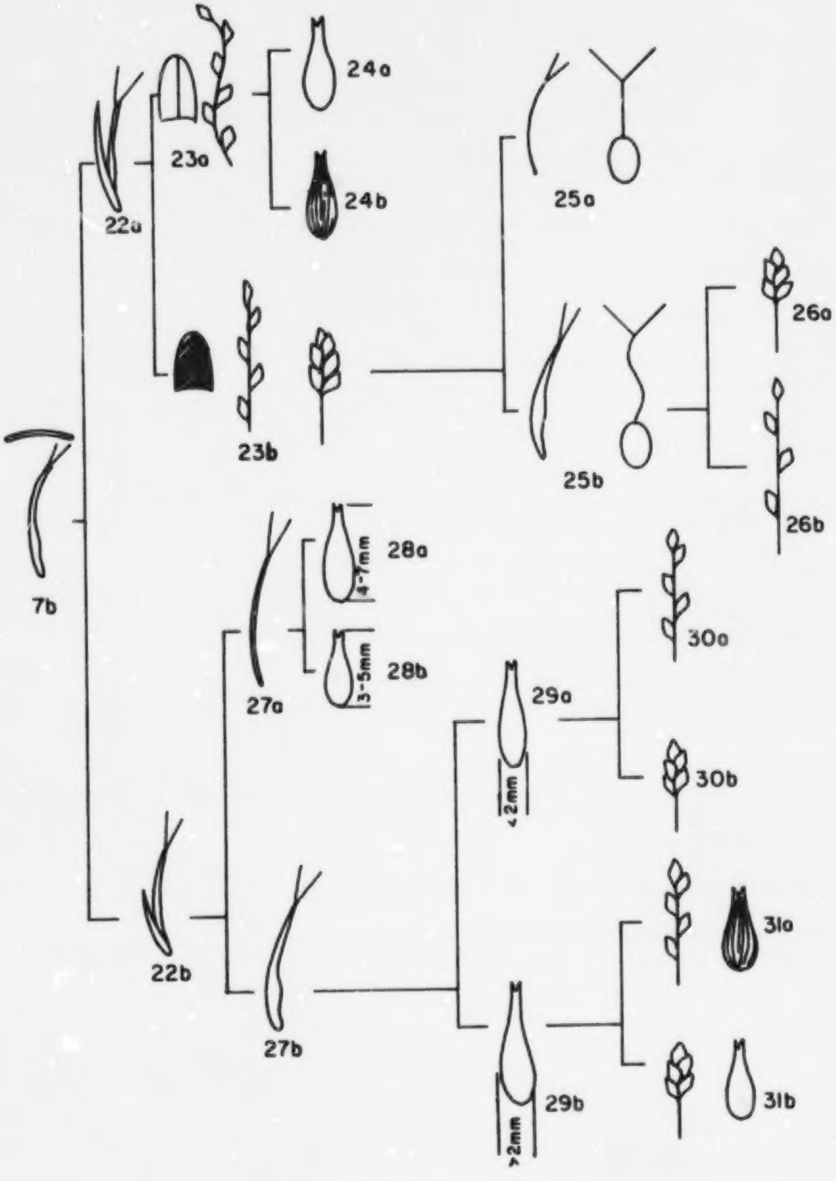
30b Head densely compact, perigynium 1.0 - 2.0 mm broad ovate-lanceolate .... C. BEBBII

29b Perigynia more than 2.0 mm broad

31a Head moniliform, perigynia many-nerved ventrally .... C. HORMATHODES

31b Head densely-compact, perigynium nerveless ventrally .... C. CUMULATA

SECTION II (c)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SECTION III

1a ACHENE INVAGINATED NEAR MIDDLE

2a Scales with awns much longer than blade and perigynia, perigynia brown-punctulate, few-nerved .... C. PALEACEA

2b Scales with awns shorter than blades, perigynia nerveless, not puncticulate

3a Scales dark-purple, spikes erect or ascending .... C. SALINA

3b Scales fulvous, lower spikes usually pendulous .... C. CRINITA

1b ACHENE NOT INVAGINATED

4a Terminal spike usually gynaecandrous, perigynia orange or white-puberulent

5a Perigynia orange and fleshy at maturity, scales brown, cusped, achene brown .... C. AUREA

5b Perigynia whitish-puberulent, scales dark purple, midrib evanescent near summit, achene blackish .... C. BICOLOR

4b Terminal spike staminate or androgynous, lateral spike linear-cylindric and stiffly ascending

6a Perigynia nerveless or obscurely nerved near base

7a Lowermost bract foliaceous, about equaling inflorescence, terminal spike usually more than 2 cm long .... C. AQUATILIS

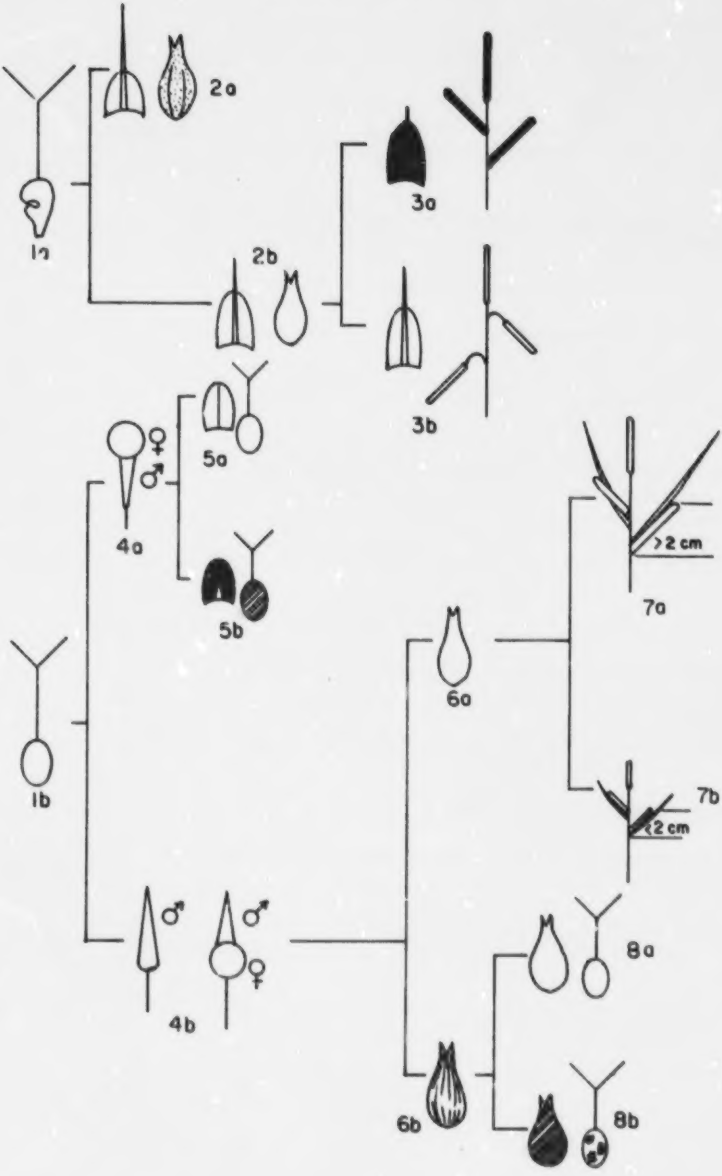
7b Lowermost bract setaceous, barely exceeding spike, terminal spike less than 2 cm long .... C. BIGELOWII

6b Perigynia nerved

8a Perigynia glaucous-granulose, achene brown .... C. LENTICULARIS

8b Perigynia fulvous, mature achene suffused with purple .... C. NIGRA

SECTION III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♂
♀
8a
4b
6b
8b

SECTION IV

1a Pistillate spikes less than 1.0 cm long, peduncled

2a Scales vinous to purple with hyaline margins

3a Spikes very long capillary-peduncled, perigynia piloseglandulose .... C. PEDUNCULATA

3b Spikes sessile or short-peduncled, perigynia pubescent .... C. CONCINNA

2b Scales fulvous to light-brown, or hyaline

4a Basal inflorescence present, lateral spikes peduncled

5a Scales with dark-purple margins, costa excurrent, achene obovoid, pale-green .... C. DEFLEXA

5b Scales pale-brown, costa divergent near summit, achene orbicular, dark-brown, style bulbous at base .... C. UMBELLATA

4b Lateral spike subsessile, scales hyaline . ... C. NOVAE-ANGLIAE

1b Pistillate spikes more than 1.0 cm long, sessile or subsessile

6a Perigynia 4.0 - 6.0 mm long, base rounded, nerves conspicuous .... C. HOUGHTONII

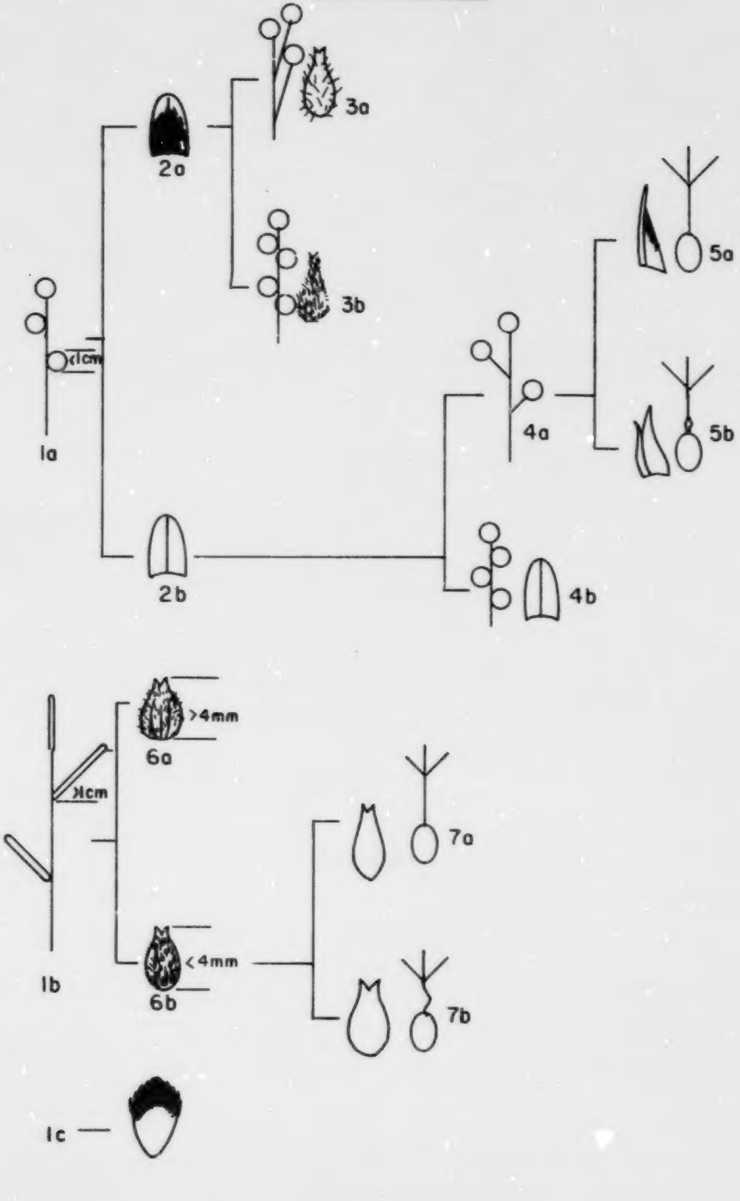
6b Perigynia 3.0 - 4.0 mm long, base substipitate, nerves concealed by griseous pilosity

7a Perigynia oblong, achene obovoid, style straight .... C. LANUGINOSA

7b Perigynia broadly ovoid, achene obovoid-ellipsoid, style flexuous .... C. LASIOCARPA

1c Perigynia ciliate scarbous, obovoid, suffused with purple at summit, pale at base .... C. PETRICOSA var. MISANDROIDES

SECTION IV



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2b
4b
1b
>1cm
6a
>4mm
6b
<4mm
7a
7b
1c

SECTION V

Sub-section V(a)

1a PERIGYNIA BEAKLESS OR NEARLY SO (except C. vaginata)

2a Bracts sheathless or barely sheathing

3a Bracts purple-auricled, scales dark brown to purple

4a Terminal spike usually gynaecandrous, laterals erect or ascending, subsessile or short-peduncled

5a Terminal spike staminate, style dark-brown, persistent and prominent above orifice .... C. STYLOSA

5b Style paler, short or lacking, soon disarticulating

6a Inflorescence divergent, spikes ellipsoid, short-peduncled 1.0 - 2.5 cm long .... C. ATRATIFORMIS

6b Spikes ascending, ovoid, linear-cylindric, subsessile

7a Spikes in a glomerate head 0.5 cm long, scales obtuse .... C. NORVEGICA

7b Spikes approximate, 0.8 - 1.5 cm long, scales cuspidate .... C. BUXBAUMII

4b Terminal spike usually staminate, laterals arching or drooping long-peduncled

8a Lowermost bract setaceous, scales promptly deciduous .... C. RARIFLORA

8b Lowermost bract foliaceous, scales persistent

9a Terminal spike slenderly linear-cylindric, scales broader and equaling perigynia .... C. LIMOSA

9b Terminal spike short-cylindric, scales narrower and longer than perigynia .... C. PAUPERCULA

3b Bracts not dark-auricled, lowermost bract foliaceous, exceeding inflorescence, piloseglandulose dorsally; scales hyaline .... C. PALLESCENS

2b Bracts sheathing

10a Terminal spike staminate, exceeded by 2 or more, long-peduncled, lateral spikes .... C. EBURNEA

10b Terminal spike not exceeded by lateral spikes

11a Scales hyaline to fulvous

12a Spikes loosely-flowered, slenderly linear-cylindric, on long capillary arching-peduncles .... C. GRACILLIMA

12b Spikes closely flowered, short linear-cylindric

13a Terminal spike long-peduncled, lateral spike sessile often basal .... C. CRAWEI

13b Terminal spike short-peduncled, lowermost lateral long-peduncled .... C. CONOIDEA

11b Scales vinous to purple

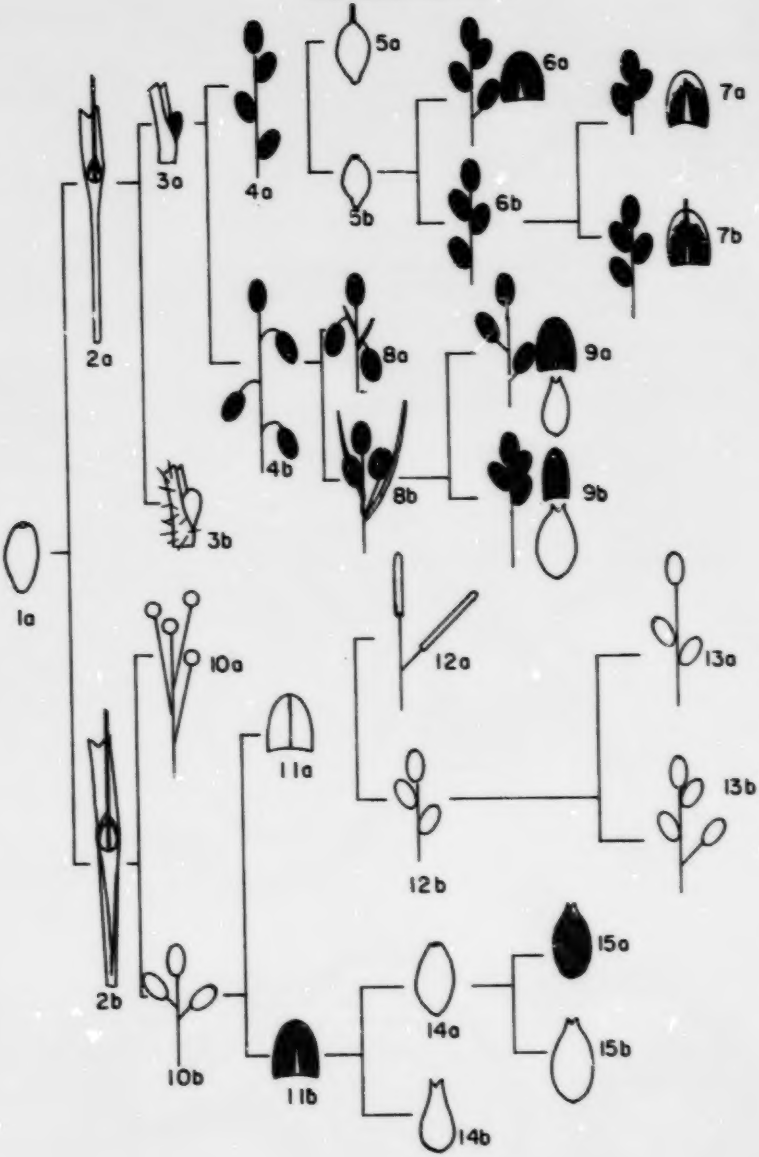
14a Perigynia strictly beakless with truncate orifice

15a Perigynia stramineous becoming purple, glabrous .... C. PANICEA

15b Perigynia glaucous-granulose .... C. LIVIDA

14a Perigynia tapering to a long hyaline tipped beak .... C. VAGINATA

SECTION V (a)



5a
6a
7a
2a
3a
4a
5b
6b
7b
8a
9a
4b
8b
9b
3b
1a
10a
12a
13a
11a
13b
12b
2b
15a
14a
10b
11b
15b
14b

Sub-section V(b)

1b PERIGYNIA DISTINCTLY BEAKED

16a Most lateral spikes long-peduncled

17a Scales hyaline, awned, blade of scale retuse, perigynia fusiform .... C. LEPTONERVIA

17b Scales stramineous, perigynia lanceolate

18a Spikes 5 - 10 flowered, lowermost bract about equaling spike, perigynia olivaceous, achene stramineous .... C. CAPILLARIS

18b Spikes 10 - many flowered, achene fulvous

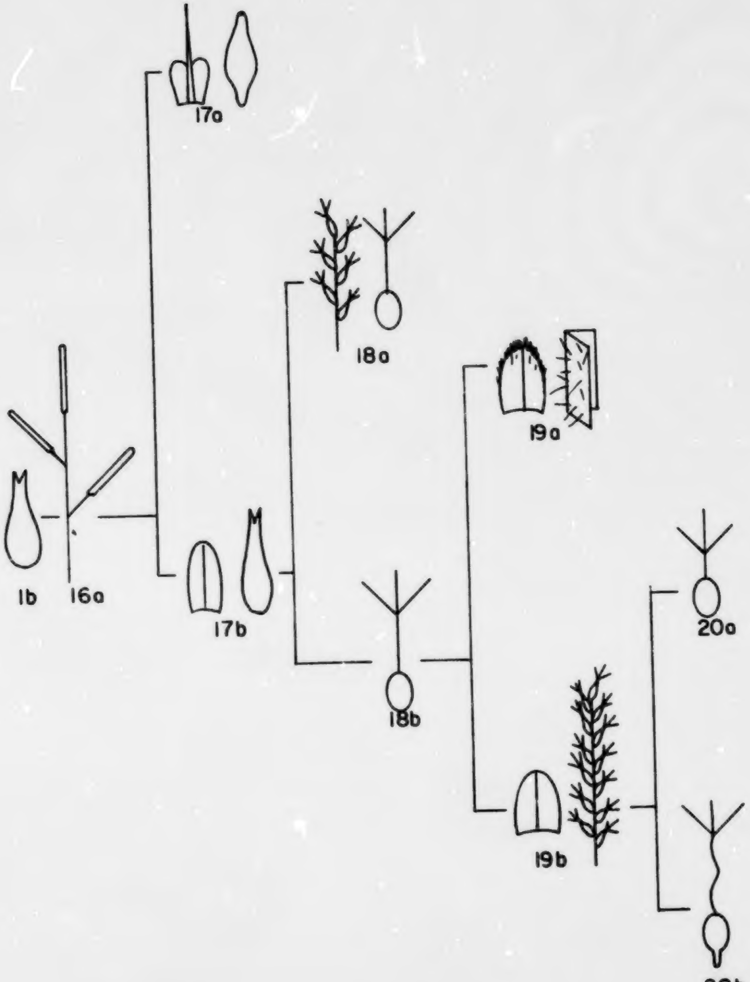
19a Bracts and scales piloseciliate dorsally .... C. CASTANEA

19b Spikes very slenderly linear-cylindric, lower flowers approximate

20a Achene sessile longer than style .... C. ARCTATA

20b Achene stipitate shorter than style .... C. DEBILIS

SECTION V (b)



17a
18a
19a
1b
16a
17b
18b
20a
19b
20b

Sub-section V(c)

16b Most lateral spikes short-peduncled or subsessile

21a Style jointed at base, soon disarticulating and shrivelling

22a All bracts ascending, long-sheathing, terminal spike long-peduncled, lateral spikes oblong-ellipsoid, flowers ascending .... C. HOSTIANA

22b All bracts except uppermost reflexed, sheathless or short sheathing

23a Perigynia 3.0 - 6.0 mm long, beak 1/2 as long as body

24a Spikes crowded at summit, staminate spike sessile .... C. FLAVA

24b Spikes approximate to remote, staminate spike peduncled .... C. LEPIDOCARPA

23b Perigynia mostly less than 3.0 mm long, beak 1/4 - 1/3 as long as body

25a Beak 1/3 as long as body, scales vinous, lower bract rarely more than 1 1/2 times as long as inflorescence .... C. VIRIDULA

25b Beak 1/3 as long as body, scales stramineous, lower bract 2 - 3 times as long as inflorescence .... C. DEMISSA

25c Pistillate spikes 3-5; perigynia stramineous, obscurely 3-5 nerved, beak straight and 1/4 as long as body; bracts sheathless, 1 1/4-1 1/2 times as long as inflorescence .... C. SEROTINA

25d Pistillate spikes 1-2 (or, if 3, the lowermost basal); perigynia dark yellowish-green or brown, conspicuously 10-nerved, beak 1/4 as long as body, oblique; bracts spathiform, barely exceeding inflorescence; style contorted at base .... C. SAXILITTORALIS

21b Style continuous, persistent

26a Perigynia usually more than 1.0 cm long

27a Spikes aggregate at summit, perigynia inflated 5.0 - 8.0 mm wide .... C. INTUMESCENS

27b Spikes approximate to remote, perigynia barely inflated, 1.0 - 3.0 mm wide

28a Scales 1/2 as long as perigynia, awnless .... C. MICHAUXIANA

28b Scales 3/4 or longer than perigynia, awned .... C. FOLLICULATA

26b Perigynia less than 1.0 cm long

29a Scales awned

30a Perigynia olivaceous, thick-walled .... C. LACUSTRIS

30b Perigynia stramineous, thin-walled

31a Perigynia strongly reflexed, 8 - 10 nerved .... C. PSEUDO-CYPERUS

31b Perigynia divergent, 15 - 20 nerved .... C. HYSTRICINA

29b Scales awnless, or slightly cuspidate

32a Spikes subsessile, less than 2.0 cm long, globose-ovoid .... C. OLIGOSPERMA

32b Spikes short-peduncled, cernuous, thick linear-cylindric

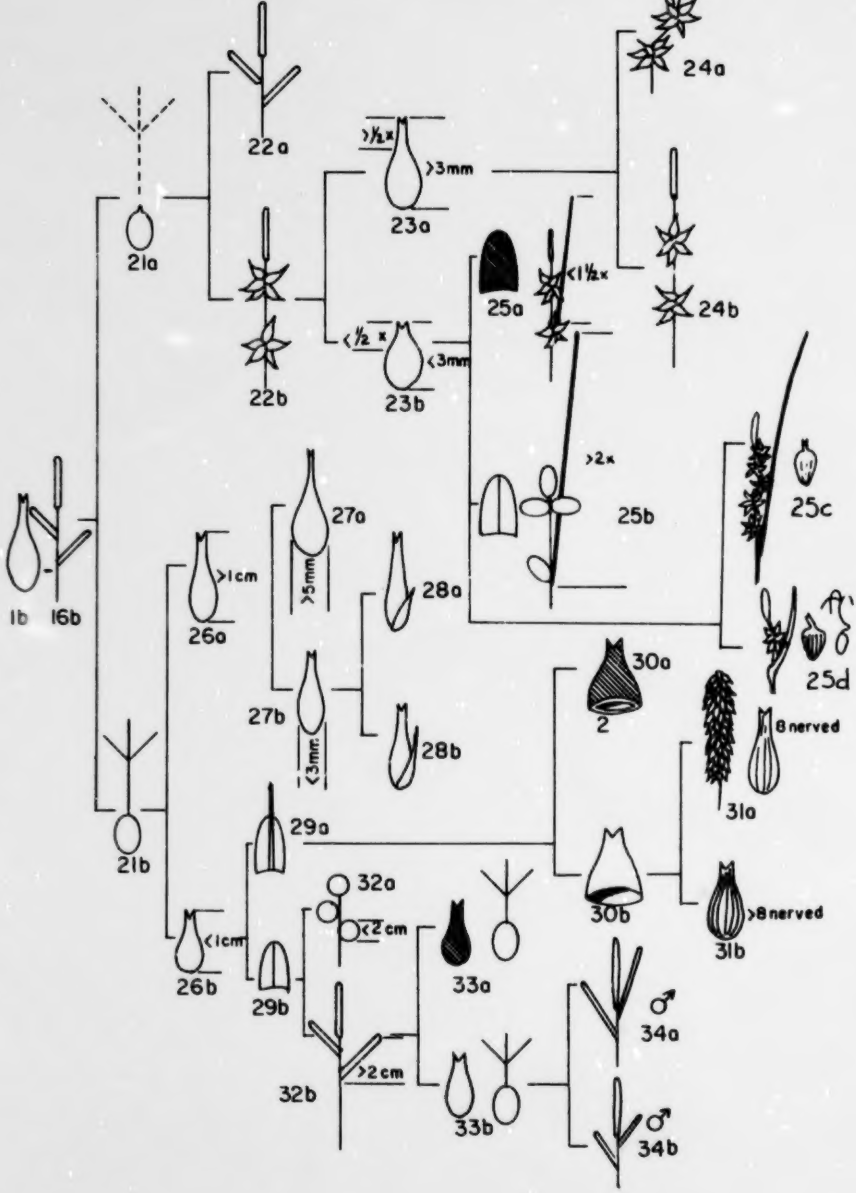
33a Perigynia becoming vinous, achene yellowish, stigmas 2 - 3 .... C. SAXATILIS

33b Perigynia stramineous, achene fulvous

34a Staminate spike 0.3 - 1.0 dm long, subtending 1 - 2 staminate spikes the same length, scales cuspidate .... C. ROSTRATA

34b Staminate spike usually less than 0.4 dm long, subtending lateral spikes much shorter .... C. VESICARIA

SECTION V (c)

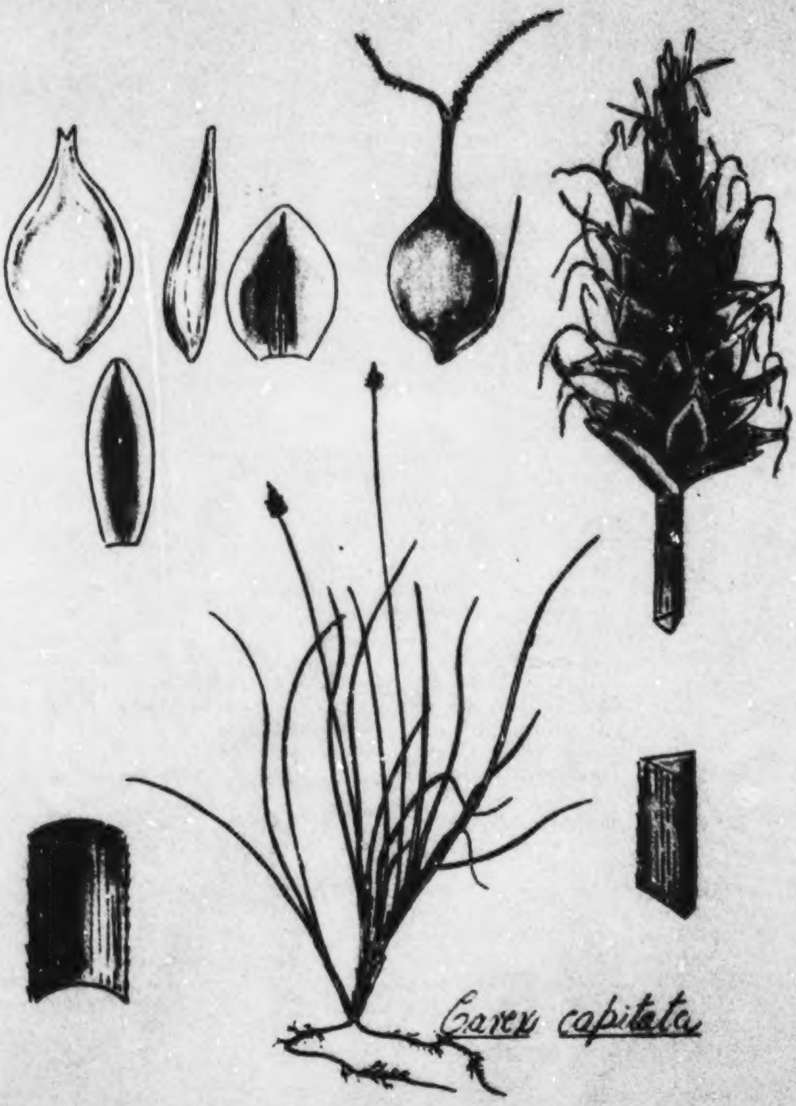

1b
>½x
>3mm
<½x
<3mm
<1½x
>2x
>1cm
<1cm
>5mm
<3mm
8 nerved
>8 nerved
<2cm
>2cm
♂
♂

SPECIES AND DESCRIPTIONS

CAPITATAE Christ, Bull. Soc. Bot. Belg. 24(2):20. 1885.

1. CAREX CAPITATA L., Syst. Nat. 10 ed. 1261. 1759.

ROOTSTOCKS	Strongly rhizomatous
SHEATHS	Basal sheaths dull purplish-red, densely tufted; lower sparingly filamentose; upper tight, hyaline ventrally, truncate; ligule short.
LEAVES	Light green, 1/3-1/2 as long as culm, 0.5-1.0 mm wide, filiform, plicate to gutter-shaped, leuconeurous ventrally, margins scabrous to near sheath.
CULM	Phyllopodic, with 2-4 leaves at base, 1-2 dm tall, wiry, angles scabrous above, faintly ribbed, transverse section solid.
SPIKE	Solitary, subglobose, bractless, androgynous; staminate portion imbricate, 1.0-2.5 mm wide, acuminate; pistillate portion 3.0-6.0 mm wide, 6-25 flowered.
SCALES	Pistillate scales dark brown with hyaline margins, midrib green, trinervate, shorter than perigynium, obtuse to acuminate. Staminate scales oblong-ovate, 1.5-2.0 mm long.
PERIGYNIA	Ascending but soon divergent; pale-green or fulvous, 2.0-3.0 mm long, 1.0-2.0 mm wide, sessile, rounded at base, plano-convex, membranaceous, nerveless ventrally, finely few-nerved dorsally, beak 0.5-0.9 mm long, slender, bidentulate ventrally.
ACHENE	Loosely enveloped by perigynium; rachilla green, white tipped, setaceous, equaling body of achene; achene fulvous, 1.5 mm long, 1.0 mm wide, lenticular, style 0.5 mm long; stigmas 2, reddish-brown.
DISTRIBUTION	Circumpolar arctic-boreal, and disjunct cosmopolitan in alpine regions.
HABITAT	Rare, found only in mesotrophic and minerotrophic fens and peaty shores of small brooks in coastal heaths along the Straits of Belle Isle.
FORAGE VALUE	Insignificant
CHROMOSOME NUMBER	$2n = 50$

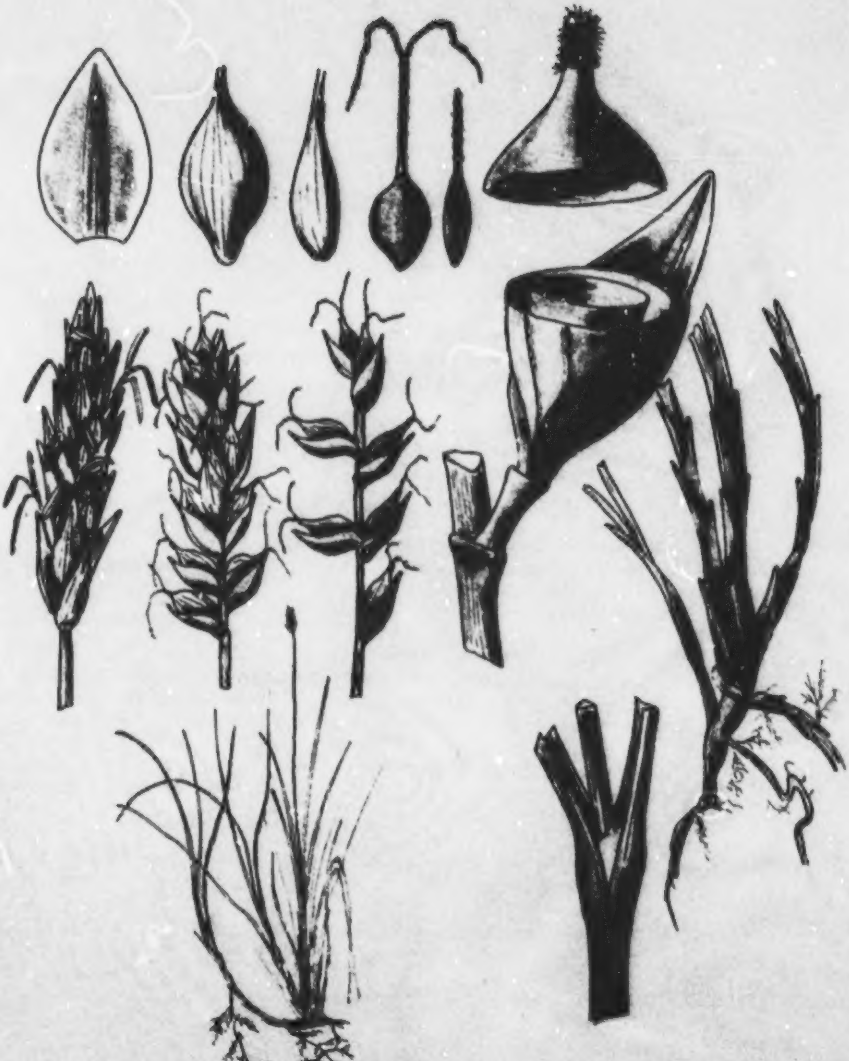


Carex capitata

DIOICAE Tuckerm., Enum. Caric. 7. 1843

2. CAREX GYNOCRATES Wormskj., in Drejer, Nat. Tidssk. 3:434. 1841.

ROOTSTOCKS	From filiform creeping stolons; roots fulvous, 1 mm thick.
SHEATHS	Basal sheaths brown; lower slightly fragmented; upper tight, truncate; ligule short.
LEAVES	Light green, 0.2-1.0 dm long, 0.5 mm wide near sheath, loosely hanging, margins smooth, upper 1/3 acicular, involute.
CULM	Solitary or few, aphyllopodic with 2-5 leaves near base, 1-3 dm tall, equaling or exceeding leaves, stiff, angles obtuse and smooth.
SPIKE	Solitary, bractless, androgynous, staminate or pistillate, 0.5-2.0 cm long, 0.2-0.4 cm wide, linear-cylindric, 2-4 flowered.
SCALES	Pistillate scales brown or reddish, midrib light-brown, trinervate, longer than perigynium, oblong-ovate, acute or acuminate; staminate scales paler, narrower, obtuse, acuminate.
PERIGYNIA	Fulvous or olive, 3.0-3.5 mm long, 1.5-2.0 mm wide, ascending becoming divergent to reflexed, coriaceous, lustrous, slenderly ovoid, substipitate, and spongy at base, biconvex, membranaceous, finely nerved on both sides; beak 0.5 mm long, slender, serrulate, bidentulate ventrally.
ACHENE	Fulvous, 1.5 mm long, 0.9 mm wide, lenticular; style 1.2 mm long, setulose; stigmas 2, reddish-brown, short.
DISTRIBUTION	Temperate-boreal
HABITAT	Eutrophic fens and black spruce fen forest.
FORAGE VALUE	Insignificant.
CHROMOSOME NUMBER	$2n = 48$.



Carex gynocrates

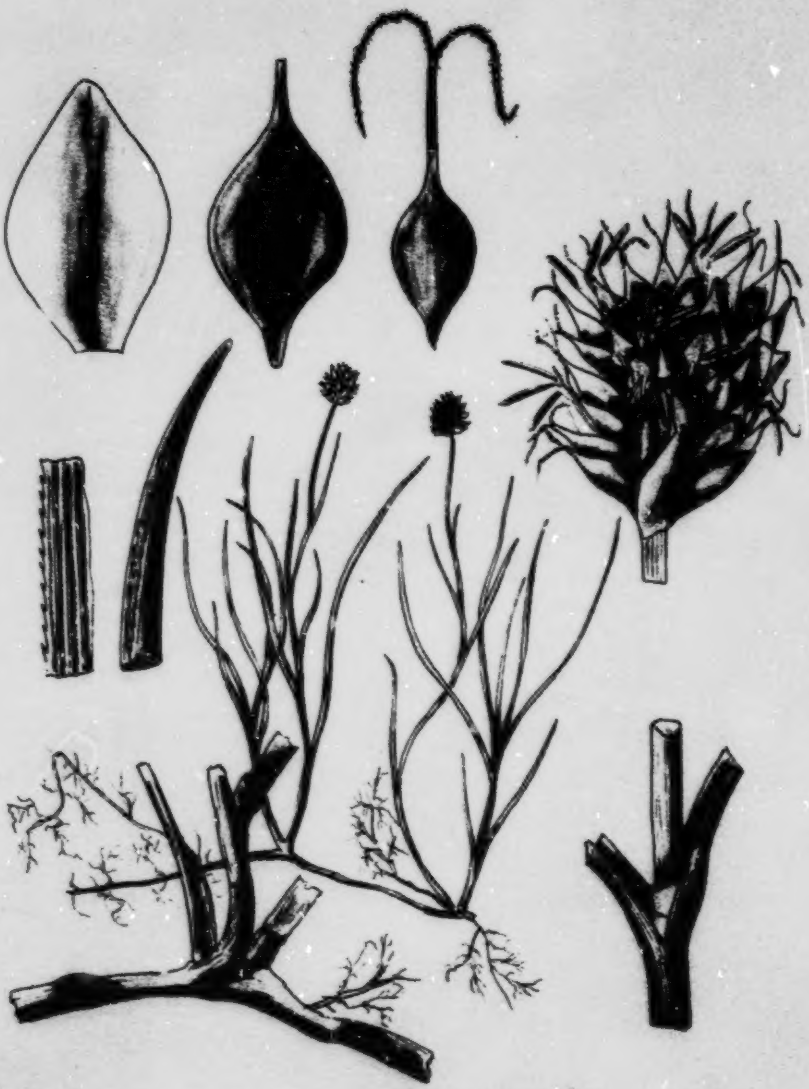
FOETIDAE Tuckerm., Enum. Caric. 10. 1843

3. CAREX MARITIMA Gunn., Fl. Norv. 2:20 1772.

3a. var. *setina* (Christ) Fern., Rhodora 35:395. 1933.

ROOTSTOCKS	Extensively creeping from forking rhizomes and stolons; rhizomes brown, 2.5 mm thick, scaly, cordlike.
SHEATHS	Basal sheaths brown, upper tight; inner band truncate; ligule broader than long.
LEAVES	Light-green, 0.2-1.5 dm long, 1.0-2.0 mm wide near sheath, erect or recurved-spreading, smooth or barely scabrous near apex, strongly involute above.
SPIKES	Heads 1-5, aggregate, 0.8-1.5 cm in diameter, globose, subglobose or globose-ovoid, androgynous; staminate flowers inconspicuous, anthers 1.7-2.5 mm long; upper spikes bractless, lowermost bract papery, lustrous, brown, obtuse or mucronate.
SCALES	Stramineous or castaneous, margins silvery-hyaline, midrib green, trinervate, 3.0-3.25 mm long, 2.0-2.25 mm wide; pistillate scales ovate, obtuse or acuminate, scarious; staminate scales oblong-ovate, acute.
PERIGYNIA	Divergent, fulvous to dark-brown, 3.0-5.0 mm long, 1.25-2.0 mm wide, ovate, plano-convex, sub-inflated, membranaceous, obscurely nerved, stipitate; beak 1.0 mm long, slender, sometimes curved, sparingly serrulate, bidentulate ventrally.
ACHENE	Loosely enveloped by perigynium, dark-brown, 1.5 mm long, lenticular, stipitate, apex articulate; style short; stigmas 2, light-brown.
DISTRIBUTION	Circumpolar arctic-boreal, and disjunct cosmopolitan in alpine regions.
HABITAT	Saltmarshes, coastal sand dunes and peaty soils in sea spray zones on coastal heaths.
FORAGE VALUE	Reasonable seed source for small birds.
CHROMOSOME NUMBER	2n = 60.

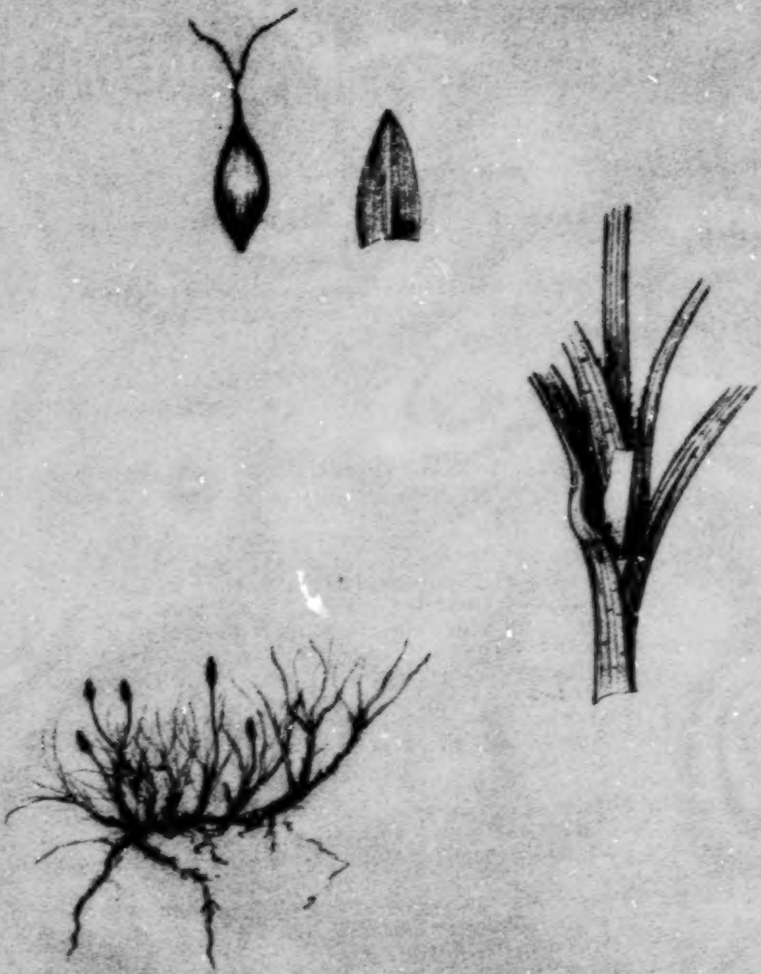
3a. var. *setina*. Very dwarf, culms 0.1-2.0 cm long, leaves bristleform 1.0-3.5 cm long; inflorescence 4.0 mm diameter, perigynia 3.0-3.5 mm long.



Carex maritima

4. CAREX LANGEANA Fern., Rhodora 35:217. 1933.

ROOTSTOCKS	Extensively creeping from forking rhizomes and stolons; rhizomes brown, 2.0 mm thick, scaly, cordlike.
SHEATHS	Basal sheaths brown, upper tight; inner bank truncate; ligule broader than long.
LEAVES	Light-green, 0.2-1.0 dm long, 0.5-1.5 mm wide near sheath, weakly erect or recurved-spreading, strongly scabrous and involute on upper 1/2.
SPIKES	Heads 1-4, aggregate, 3-5 mm in diameter, ellipsoid, androgynous; staminate flowers inconspicuous, anthers 0.5-1.0 mm long; upper spikes bractless, lowermost bract inconspicuous, brown, mucronate.
SCALES	Castaneous, margins hyaline, midrib green, trinervate, 1.8-2.0 mm long, 1.5 mm wide; pistillate scales ovate, obtuse or acuminate; staminate scales oblong-ovate, acute.
PERIGYNIA	Divergent, fulvous to dark-brown, 2.0-3.0 mm long, 0.5-1.5 mm wide, ovate, plano-convex, biconvexed, obscurely nerved, beak 0.5-1.0 mm long, obtuse, bidentulate ventrally.
ACHENE	Loosely enveloped by perigynium, dark-brown, 1.0 mm long, lenticular, stipitate; style short; stigmas 2.
	Possibly a hybrid between C. maritima var. setina and C. gynocrates.
DISTRIBUTION	Endemic to Point Riche, Newfoundland and southern Greenland.
HABITAT	Peaty soils in sea spray zone in coastal heath.
FORAGE VALUE	Insignificant

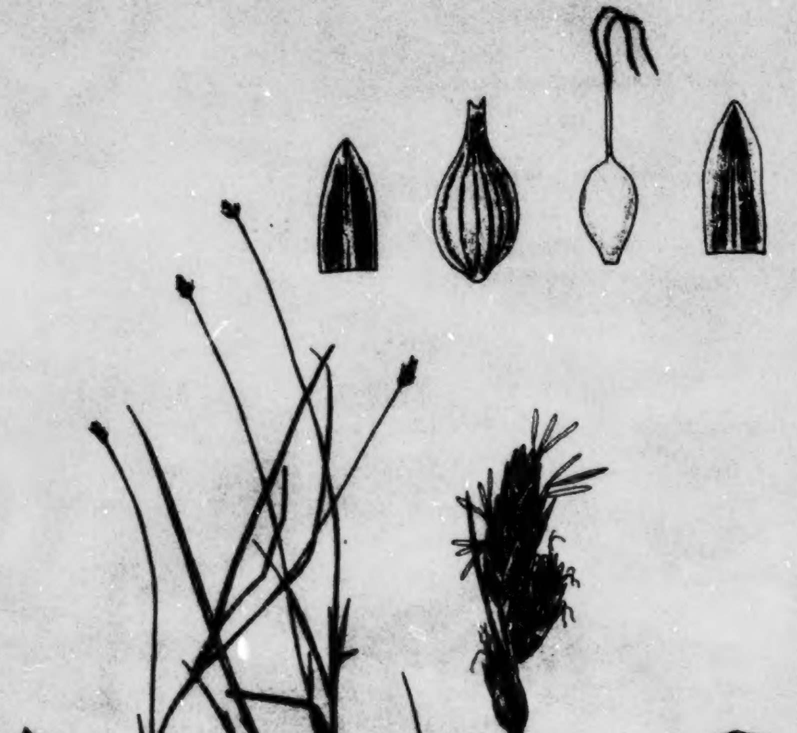


Carex langiana

CHORDORRHIZEAE Fries, Summa. Veg. Scand. 73. 1845.

5. CAREX CHORDORRHIZA L.f., Suppl. 414:1781. (Not Ehrh. 1781.)

ROOTSTOCKS	Old culms acting as rhizomes or stolons, these cord-like, elongate, prostrate and clothed with marcescent scales at nodes from which new shoots arise.
SHEATHS	Leaf sheaths loose; inner band hyaline, retuse or concave; ligule obtuse at summit, as broad as long.
LEAVES	Dark green, lustrous on both sides, 1.0-2.0 mm wide, gutter-shaped to plicate, margins serrulate or upper 1/5-1/3.
CULMS	Phyllopodic with 2-3 leaves near base, 1.0-4.0 dm tall, exceeding leaves, angles obtuse, smooth, except near summit.
SPIKES	Head 0.5-1.5 cm long, ellipsoid with 3-5 spikes; spikes androgynous, with 2-6 perigynia, ovoid; lowermost bract setaceous with serrulate margins above auricles, uppermost bract reduced to scale-like.
SCALES	Pistillate scales dark-brown, margins hyaline, midrib paler, green, trinervate, about equaling body of perigynium, acuminate; staminate scales larger.
PERIGYNIA	Fulvous, coriaceous, 2.5-3.5 mm long, ovoid, plano-convex, nerved on both sides, substipitate and spongy at base, beak 1/4 as long as body, emarginate.
ACHENE	Loosely enveloped by perigynium, fulvous, obovate, lenticular, substipitate, apiculate; style 1.5-2.0 mm long, articulate; stigmas 2, reddish brown, 2.0 mm long.
DISTRIBUTION	Temperate-boreal, transcontinental North America, disjunct in Eurasia.
HABITAT	Peat soils in sea spray zone on coastal heaths.
FORAGE VALUE	Insignificant
CHROMOSOME NUMBER	2n = 60

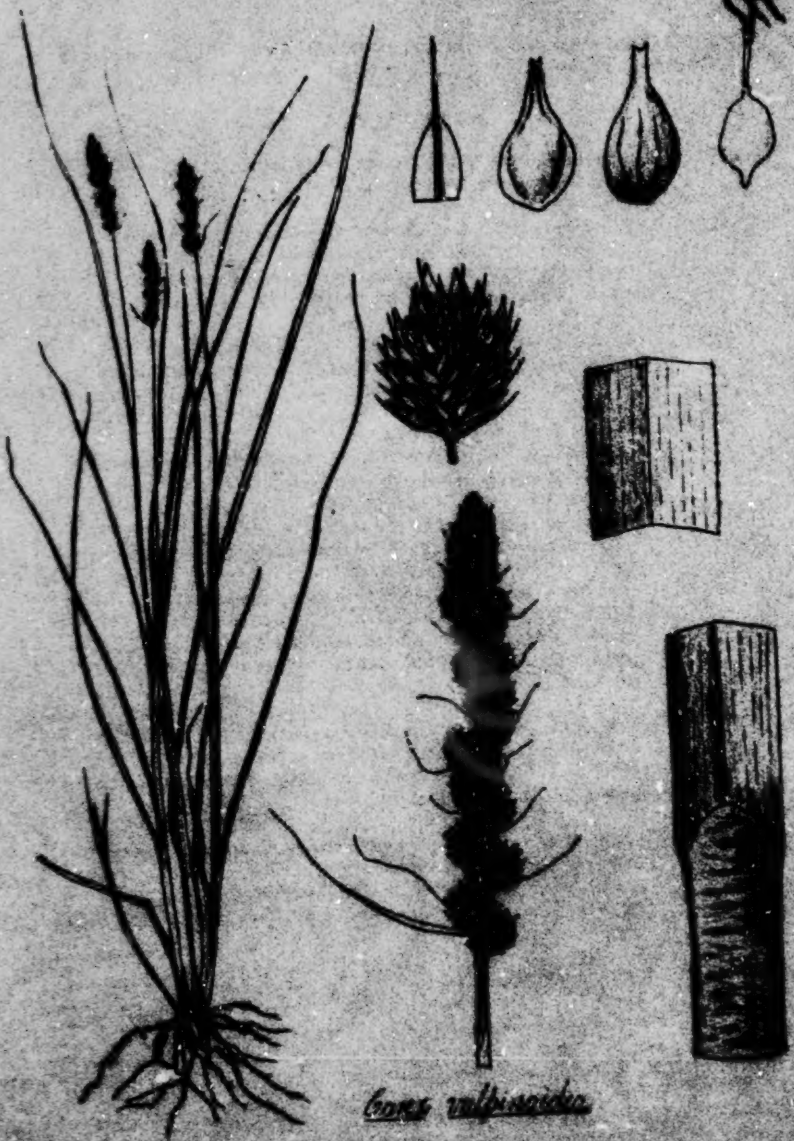


Carex chordorrhiza

MULTIFLORAE Kunth, Enum. Pl. 2:387. 1837

6. CAREX VULPINOIDEA Mich., Fl. Bor. Am. 2:169. 1803.

ROOTSTOCKS	Rhizomes and stolons short; roots light-brown, numerous.
SHEATHS	Basal sheaths light brown; leaf sheaths loose; inner band hyaline convex, prolonged, cross-puckered; ligule straight to concave.
LEAVES	Stiffly ascending, light-green, lustrous, 2.0-5.0 mm wide, plicate to gutter-shaped, acicular at summit, margins serrulate on upper 1/2.
CULMS	Densely cespitose from a rosette, phyllopodic, with 4-5 leaves on lower 2/3, 0.3-1.0 m tall, shorter than leaves, sides finely-ribbed, angles acute, serrulate on upper 1/2.
SPIKES	Head linear-cylindric, compound, dense to open, 0.2-1.5 dm long; spikes scarcely distinguishable; bracts setaceous, the lowermost 1/2 as long as inflorescence, uppermost reduced to scale-like.
SCALES	Pistillate scales stramineous, ovate, midrib darker, trinervate, costa excurrent to serrulate awn, equaling or exceeding perigynium.
PERIGYNIUM	Stramineous to fulvous, 2.0-3.0 mm long, ovate, plano-convex, few-nerved dorsally, nerveless ventrally; beak 1/2-2/3 as long as body, emarginate, margins serrulate.
ACHENE	Closely enveloped by perigynium, pale-green, ovate, substipitate, lenticular, apiculate; style 1.5 mm long, articulate; stigmas 2, reddish-brown, 2.0 mm long.
DISTRIBUTION	Temperate-boreal, transcontinental North America.
HABITAT	Rare, rich alder swamps and trails in rich moist woods.
FORAGE VALUE	Insignificant
CHROMOSOME NUMBER	2n = 54



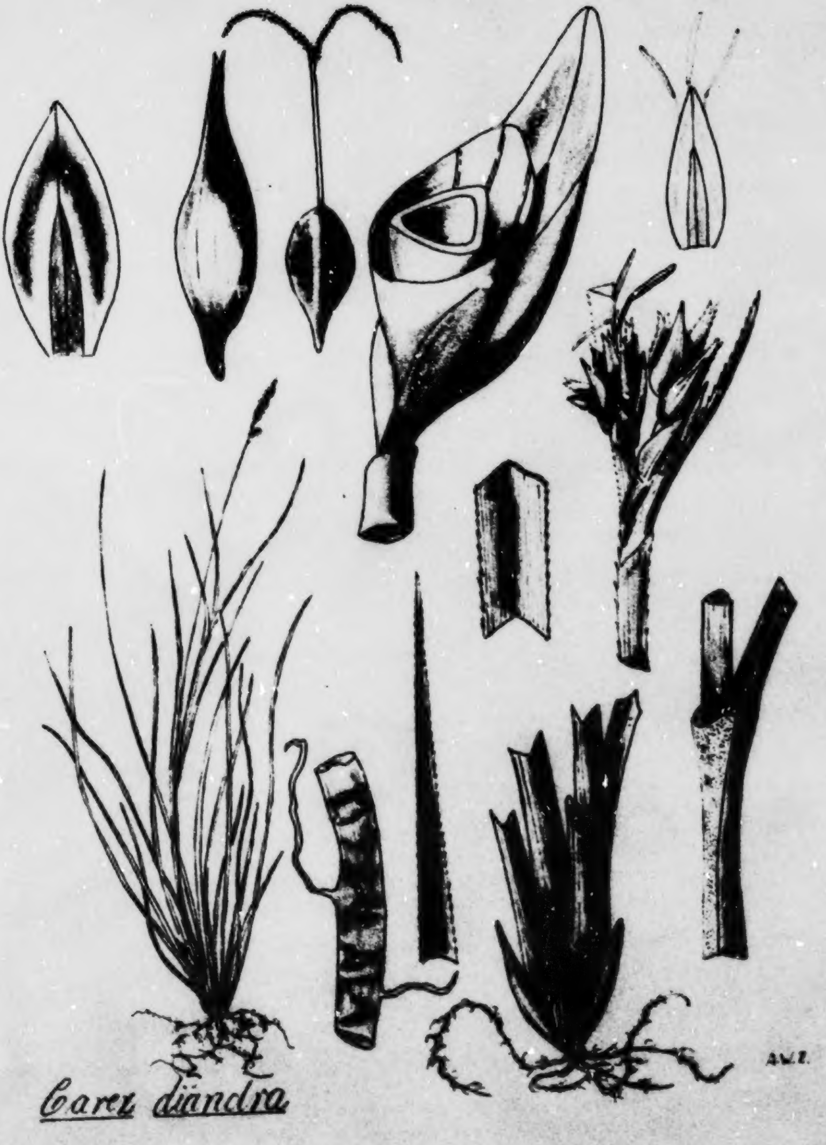
Carex vulpinoidea

PANICULATAE Kunth, Enum. Pl. 2:389. 1837.

7. **CAREX DIANDRA** Schrank, Acta. Acad, Mogunt. 49. 1782; and Cent. Bot. Anmerk. 57. 1781.

ROOTSTOCKS	Rhizomes blackish, short, slender, fibrillose; not freely stoloniferous.
SHEATHS	Basal sheaths dark-brown to black; leaf-sheaths tight, inner band prolonged and truncate or convex at mouth, striate; hyaline inner band with reddish dark-brown dots; ligule short.
LEAVES	Light-green, 2.0-4.0 dm long, 1.0-3.0 mm wide near sheath, flat or plicate, becoming acicular at apex, margins very scabrous, lustrous on both sides.
CULM	Cespitose, phyllopodic with 4-5 leaves near base, brown or dark-brown at sheath, 3.0-8.0 dm tall, angles scabrous, sides convex, 5-ribbed, upper transverse section more or less solid, lower with large triangular central cavity.
SPIKES	Head straight, paniculate-spiciform, dense or slightly open, dark-brown, 1.0-8.0 cm long; staminate flowers inconspicuous; bracts 1.0 cm long, subulate or cuspidate, shorter than spikes or inconspicuous.
SCALES	Pistillate scales fulvous, margins hyaline, midrib darker, ovate, acute trinervate, reaching to near summit of blade, 2.0-3.5 mm long. Staminate scales paler and 1/3 smaller.
PERIGYNIA	Soon divergent, olivaceous to dark-brown, lucid 2.0-3.5 mm long, narrowly deltoid-ovoid, biconvex, stipitate, strongly nerved ventrally; beak green or whitish, 2/3 as long as body, serrulate, emarginate.
ACHENE	Reddish-brown, 1.0 mm long, lenticular, apex articulate; style paler and longer than body; stigmas 2, short.
DISTRIBUTION	Circumpolar temperate-boreal, and disjunct cosmopolitan.
HABITAT	Minerotrophic and eutrophic fens, base-rich, peaty soils on shores of ponds in coastal plains, and salt marshes.

FORAGE VALUE Good seed source for birds.
CHROMOSOME NUMBER 2n = 60

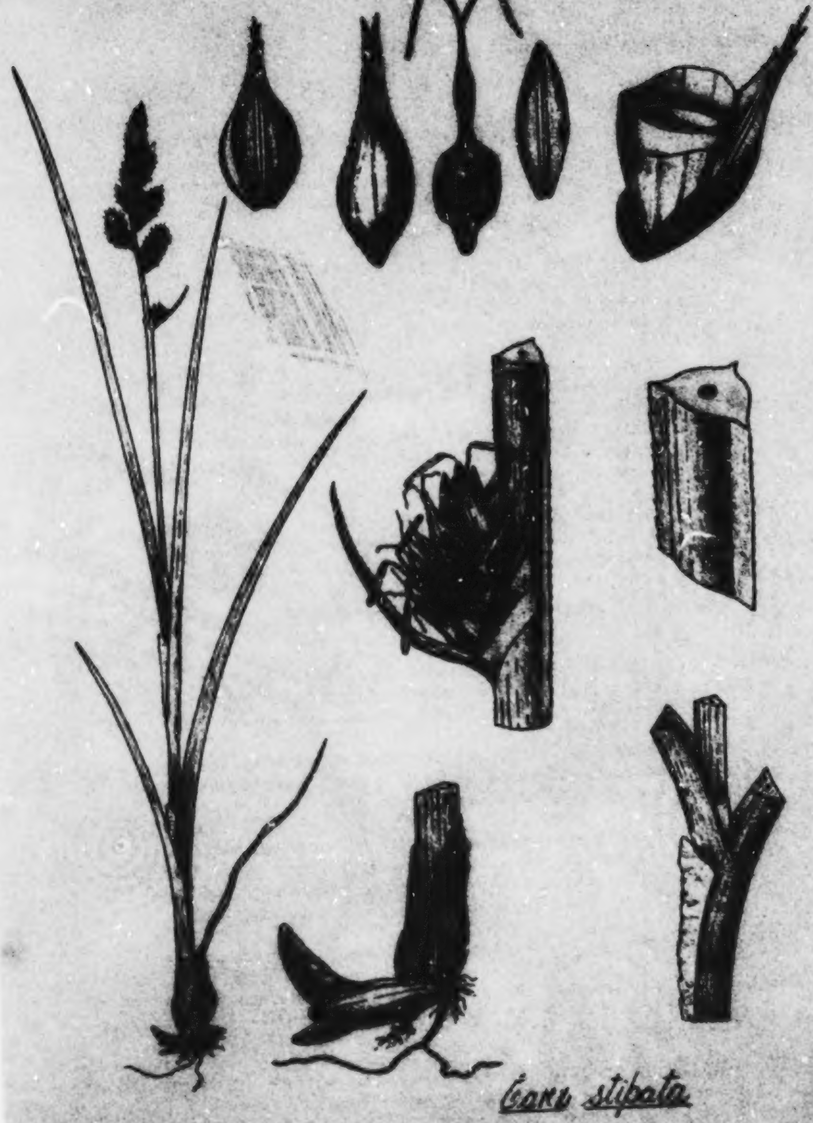


Carex diandra

VULPINAE Kunth, Enum. Pl. 2:383. 1837

8. CAREX STIPATA Muhl., in Willd., Sp. Pl. 4:233. 1805.

ROOTSTOCKS	Rhizomes dark to light-brown, short, stout; not freely stoloniferous.
SHEATHS	Basal sheaths dark-brown; upper loose, septate-nodulose dorsally, strongly ribbed, the membranaceous band prolonged and very thin and friable, coarsely reticulate ventrally, at least between nerves; ligule longer than broad, rounded at summit, margins brown.
LEAVES	Lush green, 0.4-1.0 m long, 4.0-8.0 mm wide, soft and flaccid, slightly lustrous, strongly ribbed dorsally, flat to conduplicate, margins serrulate on upper 1/5-1/4.
CULM	Erect but weak, phyllopodic, with 3-6 leaves near base, light-brown, 0.4-1.0 m tall, sides concave below becoming convex above, angles winged and serrulate on upper 1/3.
SPIKES	Numerous, androgynous, head paniculate-spiciform, yellowish or brown, 1.5-10.0 cm long, 1.0-4.0 cm wide, lanceolate or ovoid, thick-cylindric, staminate flowers inconspicuous; bracts setaceous, margins serrulate, up to 5.0 cm long or lacking.
SCALES	Pistillate scales dark brown, midrib green, trinervate, apex cuspidate, revolute, barbed, shorter or about equaling perigynium. Staminate scales paler, narrower, acuminate, not barbed.
PERIGYNIA	Brownish, 4.5 mm long dorsally; lance-ovoid, bi-convex, substipitate at base, strongly nerved, finely nerved ventrally, beak as long as body, becoming flat, emarginate, margins serrulate.
ACHENE	Mottled-brown and dull-white, 1.5-2.0 mm long, 1.25-1.75 mm wide, lenticular, plump, base substipitate and adjoined to a pulpy mass; style fusiform near base; stigmas 2, reddish brown.
DISTRIBUTION	Temperate-boreal, transcontinental North America and Japan.
HABITAT	Widespread, with strong hemerophilic tendencies, in eutrophic fens, alder swamps, wet paths and skidtrails, disturbed sites in mountain maple thickets, and occasionally in alpine fir tuckamore.
FORAGE VALUE	Good seed source for birds; apparently not grazed by animals

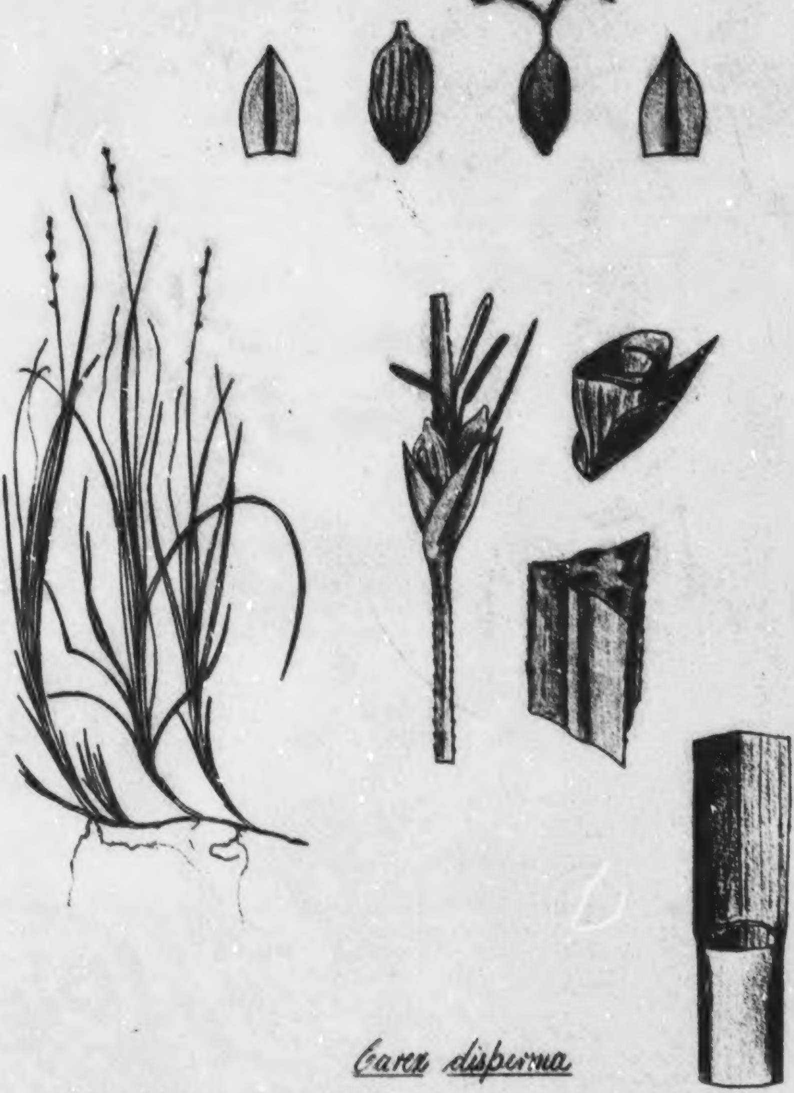


Carex stipata

HELEONASTES Kunth, Enum. Pl. 2:393. 1837

9. CAREX DISPERMA Dewey, Am. Sci. 8:266. 1824.

ROOTSTOCKS	Rhizomes elongate; stolons fulvous to brown.
SHEATHS	Basal sheaths stramineous to brown; inner band hyaline, close, truncate at summit; ligule broader than long, short.
LEAVES	Marcescent leaves numerous, often matted at base; fresh leaves soft, weakly diffuse - recurved, 0.4-2.0 dm long, 0.5-1.5 mm wide, plicate, serrulate on upper 1/2 or to sheath.
CULMS	Loosely cespitose, phyllopodic with 3-6 leaves on lower 1/3, weakly ascending, 1.0-2.5 dm tall, exceeding leaves, filiform, sides with prominent midrib, angles winged and serrulate on upper 1/2, transverse section solid with prominent vascular bundles.
SPIKES	Terminal spike staminate or frequently androgynous, 3.0-5.0 mm long; lateral spikes 1-5, pistillate or androgynous, approximate or distant, 3.0-5.0 mm long, ovoid-elliptic, 1-2 flowered or less frequently 3 flowered; bracts scale-like, barely exceeding spike.
SCALES	Pistillate scales hyaline, midrib pale-green, broadly trinervate, costa slight excurrent, shorter than perigynium, ovate, acuminate.
PERIGYNIA	Ascending, brown, subcoriaceous, 2.0-2.5 mm long, oblong-ellipsoid, turgid, nerved, base substipitate and spongy; beak minute, terete.
ACHENE	Closely enveloped by perigynium, dark-brown, ovoid-ellipsoid; plano-convex, substipitate, apiculate; style articulate, very short, stigmas 2, reddish-brown, 2.0-3.0 mm long.
DISTRIBUTION	Circumpolar temperate-boreal.
HABITAT	Most frequently in Sphagnum -black spruce bog forest and black spruce fen forest, less frequently in balsam fir tuckamore.
FORAGE VALUE	Insignificant food value, but marcescent leaves excellent nesting material for small forest birds.
CHROMOSOME NUMBER	2n = 70



Carex disperma

10. CAREX TRISPERMA Dewey, Am. Sci. 9:63. 1825.

10a. var. *billingsii* Knight, Rhodora 8:185. 1906.

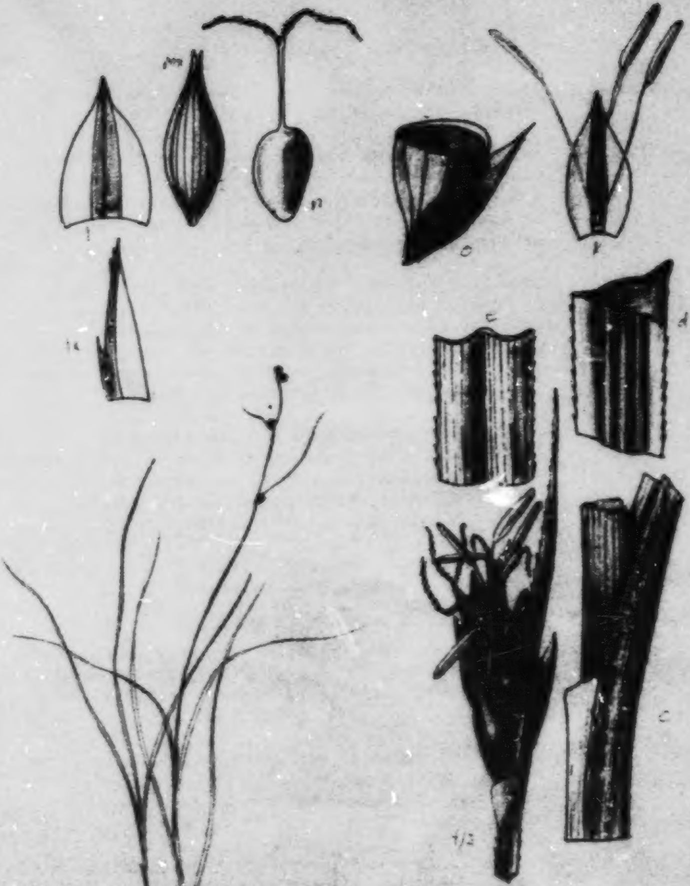
ROOTSTOCKS	Stolons yellow-white to stramineous.
SHEATHS	Shoots loosely cespitose, sheaths loose, truncate, hyaline ventrally; ligule short.
LEAVES	Deep green, 1.0-3.0 dm long, usually overtopped by culm, 0.5-2.0 mm wide, flat to conduplicate, weak and soft, margins and veins serrulate to near sheath, loosely cespitose.
CULM	Phyllopodic with 3-6 leaves on lower 1/3, brownish at base 2-7 dm long, weak, filiform; angles winged, serrulate on upper 1/3.
SPIKES	Inflorescence flexuous, slender, 1.0-4.0 cm apart, 1-5 flowered, gynaecandrous; 1-2(-3), 4.0-6.0 mm long, 3.0-4.0 mm wide, lower spike subtended by setaceous bract 2-4 cm long, bracts on uppermost shorter and cuspidate, margins of bracts serrulate to base; the uppermost spikes on a divergent peduncle-like summit of the culm.
SCALES	Pistillate scales hyaline, midrib green, trinervate, costa minutely and sparsely serrulate ventrally, slightly shorter than perigynia, ovate to oblong, mucronate to acuminate.
PERIGYNIA	Appressed-ascending, pale-green, puncticulate, sub-coriaceous 2.5-4.0 mm long, 1.6-1.8 mm wide, ovoid, thickly plano-convex, base stipitate and spongy, finely many-nerved; beak short, emarginate.
ACHENE	Closely enveloped by perigynium, brown, 1.0-2.0 mm long, 1.5 mm wide, ellipsoid-deltoid, lenticular, apiculate; style articulate, as long as body; stigmas 2, reddish-brown, 2.0-3.0 mm long.

10a. var. *billingsii*. Leaves filiform, culm subcapillary, weak, lax or arching; spikes 1-2, with 1-3 perigynium; perigynium 2.5-3.3 mm long.

DISTRIBUTION	Boreal, eastern North America.
HABITAT	Has a wider ecological amplitude than *C. disperma*, with which it is sometimes confused. Grows in poor to rich sites in oligotrophic and mesotrophic bogs, minerotrophic fens, peaty mucks on riverbanks and lakeshores, moist rich sites in balsam fir-white birch forests and mountain maple thickets. Has a slight hemerophilic tendency on disturbed sites in these communities.

FORAGE VALUE Same as *C. disperma*.

CHROMOSOME NUMBER 2n = 60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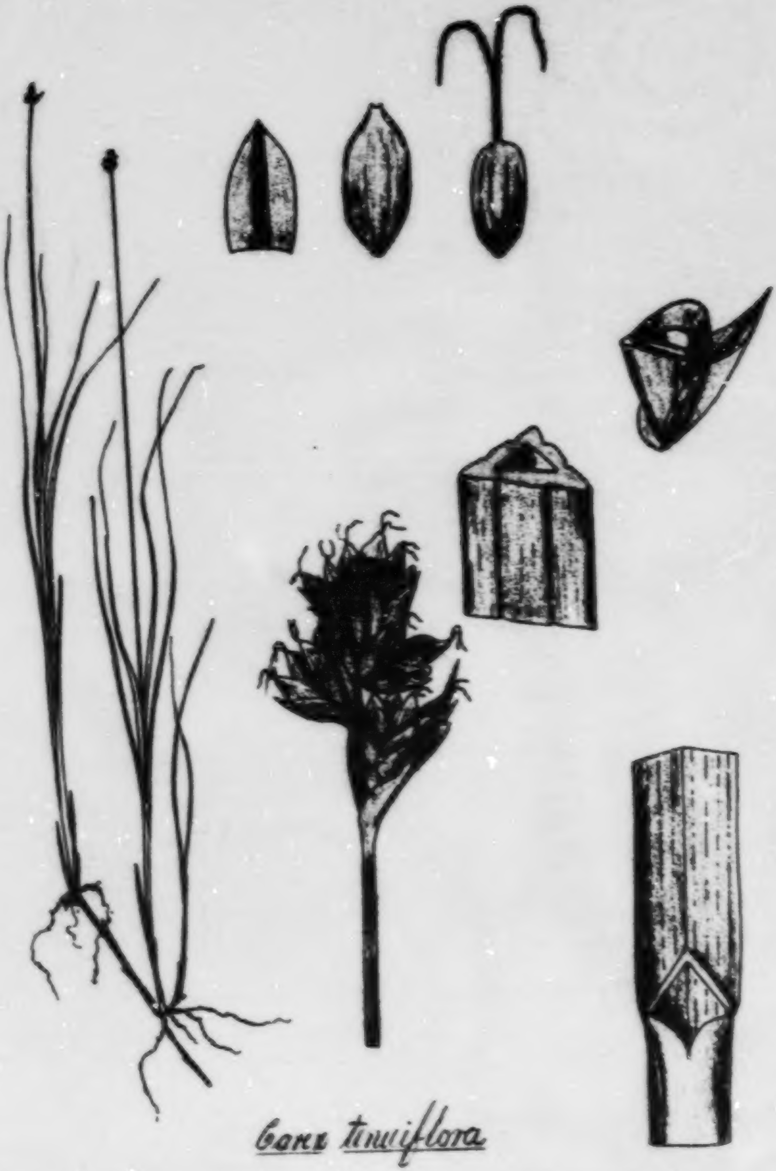
Carex trisperma

11. CAREX TENUIFLORA Wahl., Sv. Vet. -Akad. Nya Handl. 24:147. 1803.

ROOTSTOCKS	Rhizomes yellowish, slender, elongate.
SHEATHS	Basal sheaths brown; inner band hyaline, summit concave; ligule as long as broad.
LEAVES	Marcescent leaves numerous at base; fresh leaves loosely ascending, curved, weak, greyish-green, 0.5-2.0 dm long, 1.0-2.0 mm wide, flat to plicate on lower 2/3, acicular and dead on upper 1/3, margins serrulate on upper 1/2.
CULMS	Loosely cespitose, phyllopodic with 3-5 leaves on lower 1/4, 1.5-3.0 dm tall, filiform, variable from shorter to exceeding leaves, sides with prominent midrib, angle winged and serrulate on upper 1/5, transverse section, with large central cavity and few prominent vascular bundles.
SPIKES	Head globose-ovoid, with 2-4 contiguous or approximate spikes, the terminal spike gynaecandrous, pistillate spikes subglobose - ellipsoid, loosely 3-10 flowered; bract setaceous to scale-like, usually shorter than inflorescence.
SCALES	Pistillate scales hyaline, midrib green, slenderly trinervate, equaling or shorter than perigynium, ovate-oblong, obtuse.
PERIGYNIA	Stramineous to light-green, obscurely puncticulate, 3.0-3.5 mm long, oblong-ellipsoid, plano-convex, finely nerved, substipitate; beakless, orifice terete.
ACHENE	Closely enveloped by perigynium, light brown, obovoid, lenticular, substipitate, apiculate; style articulate, short; stigmas 2, brown, 2.0-3.0 mm long.
DISTRIBUTION	Circumpolar boreal, transcontinental North America but a somewhat disjunct temperate-boreal in Eurasia.
HABITAT	Fairly common in borders of mesotrophic bogs and minerotrophic fens, also peaty shores of rivers and ponds.
FORAGE VALUE	Good seed source for small birds.
CHROMOSOME NUMBER	2n = 58



Carex tenuiflora

12. CAREX GLAREOSA Wahl., Sv. Vet. -Akad. Nya Handl. 24:146. 1803.

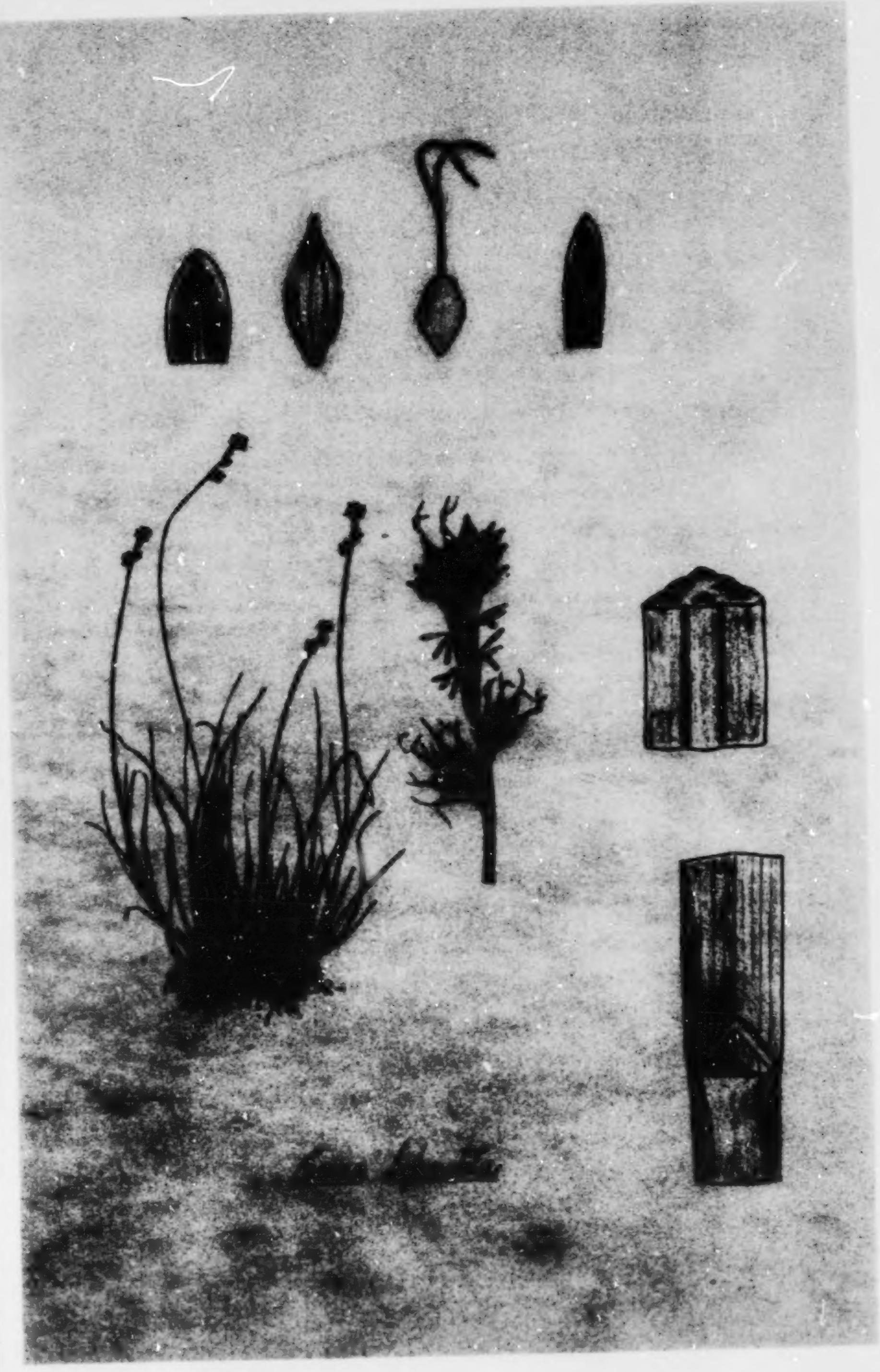
12b. var. *glareosa* (Wahl.) Polunin, Bot. Can. E. Arct. 115. 1940.

ROOTSTOCKS	Rhizomes yellowish, short and slender, densely stoloniferous.
SHEATHS	Basal sheaths brown; inner band hyaline, summit truncate; ligule as long as broad.
LEAVES	Marcescent leaves numerous at base; fresh leaves weakly ascending, 0.5-2.5 dm long, 1.0-2.0 mm wide, flat to plicate becoming acicular or upper 1/4-1/3, margins serrulate on upper 1/2 or to sheath.
CULMS	Cespitose, phyllopodic, flexuous - ascending, 0.5-2.0 dm tall, capillary, sides with prominent midrib, angles winged and serrulate near summit, smooth and obtuse below, transverse section solid with prominent vascular bundles on angles and midribs.
SPIKES	Head 0.5-2.0 cm long, spikes 2-4 approximate, imbricated, the terminal gynaecandrous, 0.5-1.2 cm long, clavate, pistillate spikes shorter, obovoid - elliptic; bracts scale-like usually inconspicuous.
SCALES	Pistillate scales ferruginous, with hyaline summit, midrib paler, green, trinervate, costa barely reaching to summit of blade, equaling or shorter than perigynium, ovate, obtuse. Staminate scales longer, paler, acuminate.
PERIGYNIA	Fulvous to reddish, puncticulate, 1.5-3.0 mm long, ellipsoid-fusiform plano-convex, prominently nerved, substipitate; beak 0.5-1.0 mm long, terete.
ACHENE	Closely enveloped by perigynium, fulvous, ellipsoid-obovoid, lenticular, substipitate, apiculate; style articulate, 1.0-1.5 mm long; stigmas 2, brown, 2.0-3.0 mm long.

12b var. *glareosa*. Perigynia fusiform, 1.5-3.0 mm long, tapering to a slender beak.

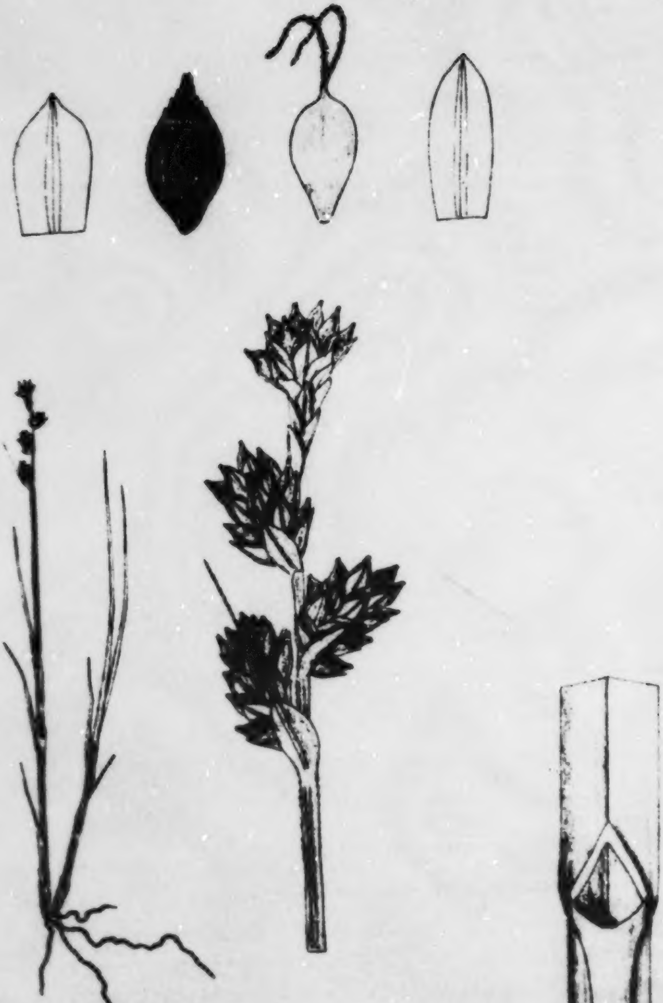
DISTRIBUTION	Disjunct arctic-boreal, also disjunct cosmopolitan chiefly of alpine regions.
HABITAT	Salt marshes of north and northwest coast of Newfoundland.
FORAGE VALUE	High grazing value for horses, cattle and sheep where it forms extensive saltmarsh meadows. Foliage has a high salt content.

CHROMOSOME NUMBER 2n = 66



13. CAREX MACKENZIEI Krecz., in Komarov, Fl. U.S.S.R. 3:183. 1935.

ROOTSTOCKS	Rhizomes yellowish, elongate, slender; stoloniferous.
SHEATHS	Basal sheaths brown; inner band hyaline, summit prolonged, concave; ligule as long as broad.
LEAVES	Ascending, soft, glaucous to stramineous, 1.0-4.0 dm long, 1.0-2.5 mm wide, flat to plicate, acicular at summit, margins serrulate on upper 1/2 or to sheath.
CULMS	Loosely cespitose, stiffly-ascending, somewhat aphyllopodic with 3-5 leaves on lower 1/2, 1.0-4.5 dm tall, about equaling leaves, sides prominently 4-ribbed, angles obtuse, smooth to near summit, transverse section with large central cavity and prominent vascular bundles on ribs and angles.
SPIKES	Head 2.0-5.0 cm long, spikes 2-6, approximate to subdistant, terminal spike gynecandrous, clavate at base; 0.5-1.5 cm long; pistillate spikes ascending, shorter, subglobose-elliptic; lowermost bract setaceous, about equaling inflorescence, upper bracts reduced to scale-like.
SCALES	Pistillate scales fulvous with hyaline margins, midrib paler, trinervate; about equaling perigynium, ovate, obtuse to acuminate. Staminate scales paler, longer, acuminate.
PERIGYNIA	Brown, 2.5-3.0 mm long, obovoid-elliptic, biconvex, distinctly nerved, substipitate, margins serrulate near summit; beak minute, terete.
ACHENE	Tightly enveloped by perigynium, golden-brown, obovoid, lenticular, substipitate, apiculate; style articulate, yellowish, 0.5 mm long; stigmas 2, reddish brown.
DISTRIBUTION	Disjunct boreal, amphiatlantic and amphipacific.
HABITAT	Salt marshes on the Northern Peninsula.
FORAGE VALUE	Same as *C. bipartita*.
CHROMOSOME NUMBER	$2n = 64$



Carex mackenziei

14. CAREX CANESCENS L., Sp. Pl. 1:974. 1753.

14a. var. *subloliacea* Laestad, in Hartman, Hand. Sc. Fl. 4:299. 1843.

14b. var. *robustior* Blytt, ex. Andersson, Cyper. Scand. 57. 1894.

ROOTSTOCKS Rhizomes short, slender; stolons stramineous.

SHEATHS Basal sheaths light-brown; inner band loose, hyaline, concave at summit; ligule longer than broad.

LEAVES Marcescent leaves numerous; fresh leaves clustered near base, flexuous-ascending, stramineous, soft, 2.0-5.0 dm long, 2.0-5.0 mm wide, flat to plicate becoming acicular and curved on uppermost 2.0-4.0 cm, margins serrulate on upper 1/4.

CULMS Loosely or densely cespitose, phyllopodic, erect, 2.0-6.0 dm tall, equaling or exceeding leaves, sides 4-ribbed, angles acuminate, smooth except near summit, transverse section solid with prominent vascular bundles.

SPIKES Head 0.2-1.5 dm long, spikes 4-8 crowded to subdistant near summit remote below, appressed-ascending, gyneacandrous, 6-12 mm long, ovoid-ellipsoid, the terminal short-clavate at base, 10-30 flowered; bracts usually scale-like and inconspicuous, or the lowermost setaceous and up to 2.5 cm long.

SCALES Pistillate scales silvery-stramineous, midrib pale-green slenderly trinervate; shorter than perigynium, ovate, obtuse with abrupt-acuminate apex. Staminate scales longer and paler.

PERIGYNIA Stramineous, 2.5-3.0 mm long, ovoid-ellipsoid, plano-convex, obscurely nerved, substipitate and spongy at base, margins minutely serrulate near summit; beak minute, 0.2-0.5 mm long, terete.

ACHENE Closely enveloped by perigynium, fulvous, ovoid, lenticular, substipitate, apiculate; style 0.2-0.5 mm long; stigmas 2, reddish brown, 1.0-1.5 mm long.

14a. var. *subloliacea*. Head slender 3-5 cm long; lowermost spikes remote, subglobos 4-7 mm long, stramineous, 5-10 flowered, slender form and small spikes it is often confused with *C. brunnescens*.

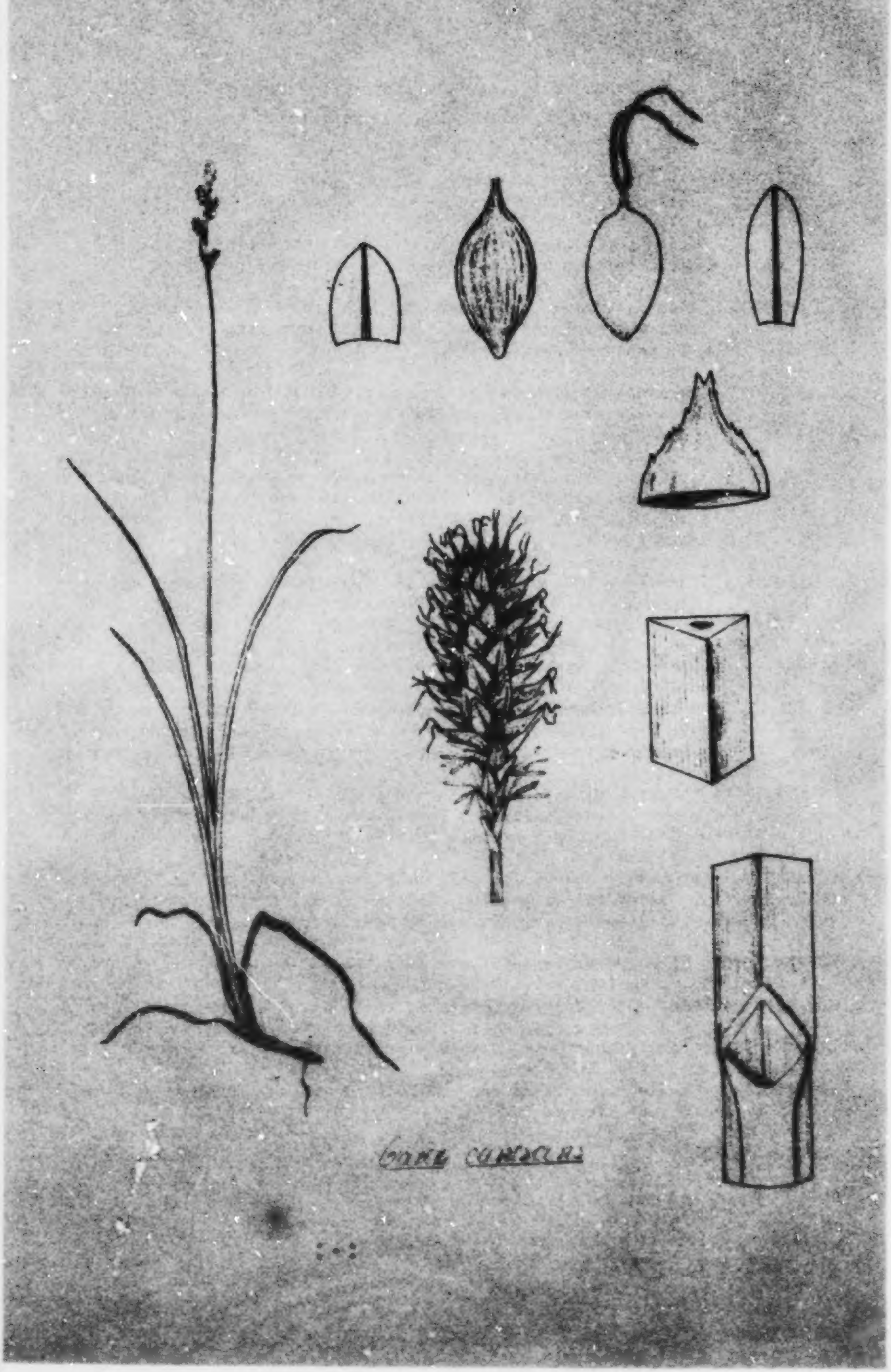
14b. var. *robustior*. Head thick, 0.2-1.5 dm long; spikes approximate, fulvous, ovoi 5-12 mm long, 10-20 flowers.

DISTRIBUTION Circumpolar temperate-boreal, also a disjunct cosmopolitan of alpine regions.

HABITAT In shrubby borders of minerotrophic and eurotrophic fens, alder swamps, alpine and sub-alpine slope fens, and black spruce forests. Exhibits hemerophilic tendencies on disturbed sites in these communities.

FORAGE VALUE A reasonable seed source for small birds.

CHROMOSOME NUMBER 2n = 52, 54, 56.


Carex canescens

15. CAREX BRUNNESCENS (Pers.) Poir., in Lam., Encycl. Suppl. 3:286. 1813.

15a. forma sphaerostachya (Dewey) Akiyama, Caric. Far. East. Reg. Asia. 61. 1955.

ROOTSTOCKS Rootstocks blackish-brown, short, fibrillose.

SHEATHS Leaf sheaths tight, hyaline and thin ventrally, prolonged, summit yellowish-brown tinged and white-puncticulate.

LEAVES Cespitose, erect or spreading, deep-green, 0.3-1.0 m long, 1.0-2.0 mm long, firm, flat becoming attenuate and scabrous-margined on upper 2/3-1/2.

CULMS Green above, brownish near sheath, 2.0-6.0 dm tall, exceeding leaves, slender, lax, angles winged and serrulate on upper 1/5.

SPIKES Head 1.0-5.0 cm long, spikes 5-8, distant or uppermost approximate; mostly gynaecandrous, green, 3.0-7.0 mm long, 3.0-4.0 mm wide, ovoid or subglobose; lower bracts 0.5-2.0 mm long, filiform, margins serrulate to base, uppermost becoming scale-like.

SCALES Pistillate scales white-hyaline or fulvous, midrib green, trinervate; 2/3 as long as perigynium, orbicular, obtuse or acute. Staminate scales paler.

PERIGYNIA Greenish to brown, 2.0-2.7 mm long, 1/2 as wide, loosely spreading, when mature, ovate-elliptic, plano-convex, margin of body rounded, densely white-puncticulate, finely nerved on both sides, base substipitate and spongy; beak reddish-brown, 0.5 mm long, margins membranaceous, hyaline, serrulate, emarginate.

ACHENE Closely enveloped by perigynium, dark brown, 1.5 mm long, 1 mm wide, ovate-elliptic, lenticular, articulate; style deciduous, 0.7 mm long; stigmas 2, reddish-brown, 1.0 mm long.

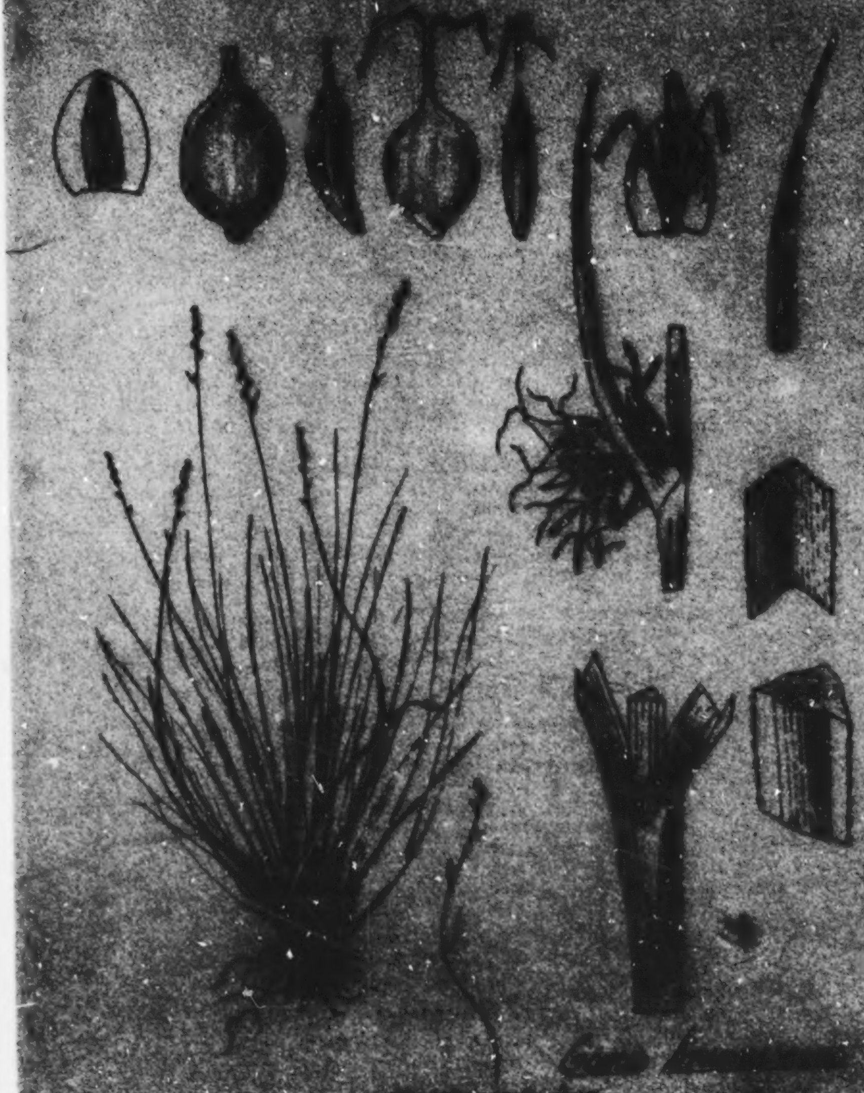
forma Sphaerostachya. Spherical-spiked. Leaves prolonged, lax, flaccid; culms filiform, ascending or arching, 0.2-1.2 mm tall; spikes mostly distant, lowermost 1-2.5 cm apart, flexuous, subglobose.

DISTRIBUTION Circumpolar temperate-boreal.

HABITAT Forested borders of eutrophic fens, alder swamps, balsam fir tuckamore and peaty soils along shores of rivers and ponds. Strongly hemerophilic on disturbed sites in these communities.

FORAGE VALUE Insignificant, except possible as nesting material for small forest birds.

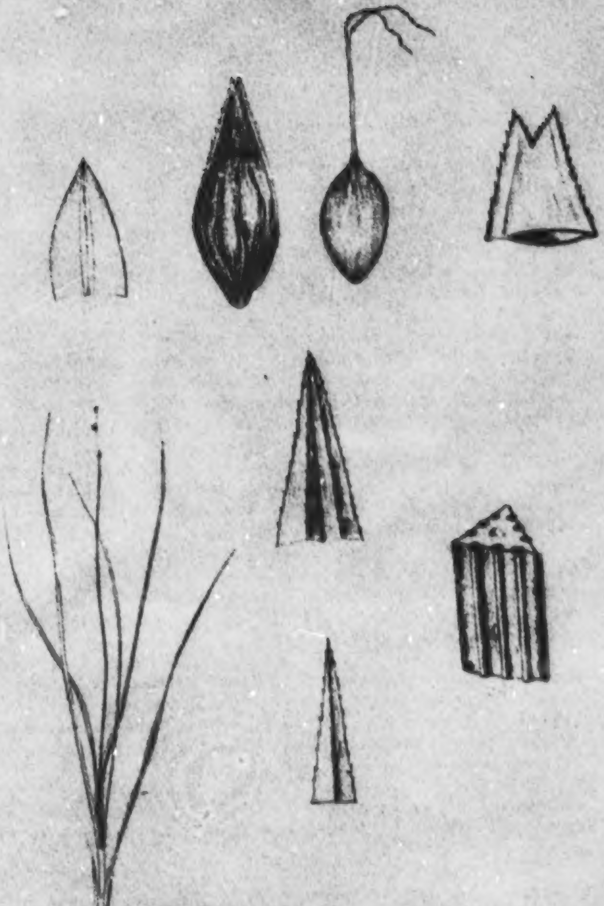
CHROMOSOME NUMBER 2n = 56.



DEWEYANAE Tuckerm., Enum. Caric. 11. 1843.

16. CAREX DEWEYANA Schw., Ann. Lyc. N.Y. 1:65. 1824. (Not W. Boott 1880.)

ROOTSTOCKS	Rhizomes and stolons short, stramineous.
SHEATHS	[illegible]l sheaths light-brown; inner band silvery-hyaline, white-puncticulate, summit concave; ligule as long as broad.
LEAVES	Marcescent leaves numerous; fresh leaves clustered at base from a rosette, weakly ascending, stramineous, lustrous, 2.0-3.0 dm long, flat to plicate, becoming convolute near summit, margins and midrib serrulate on upper 1/2.
CULMS	Loosely to densely cespitose, somewhat aphyllopodic, 0.2-1.0 mm tall,exceeding leaves, slender, sides with prominent midrib, angles winged and serrulate on upper 1/3, transverse section solid, vascular bundles inconspicuous.
SPIKES	Head 2.0-6.0 cm long, flexuous; spikes 2-7 loosely ascending, approximate to subdistant near summit, lowermost remote, gynaecandrous, 0.5-1.2 cm long, ovoid-elliptic, terminal clavate at base, loosely or compactly 3-12 flowered; lowermost bract setaceous, up to 3.0 cm long, upper scale-like and inconspicuous.
SCALES	Pistillate scales hyaline, midrib green, broadly trinervate, costa slightly excurrent and minutely serrulate dorsally near summit; shorter than perigynium, ovate, acuminate. Staminate scales longer.
PERIGYNIA	Fulvous to stramineous, 3.0-4.5 mm long, ovoid, plano-convex, short-nerved, obtuse at base; beak 1/2 as long as body, emarginate, margins serrulate, suture erose-margined.
ACHENE	Closely enveloped by perigynium, fulvous, ovate, lerticular, apiculate; style 1.0 mm long; stigmas 2, pale, 1.5 mm long.
DISTRIBUTION	Boreal, transcontinental North America.
HABITAT	Rare, in Rubus-balsam fir forests and mountain maple thickets of coastal plains in western Newfoundland. Also found in balsam fir forests on Bell Island, C.B.
FORAGE VALUE	Insignificant.

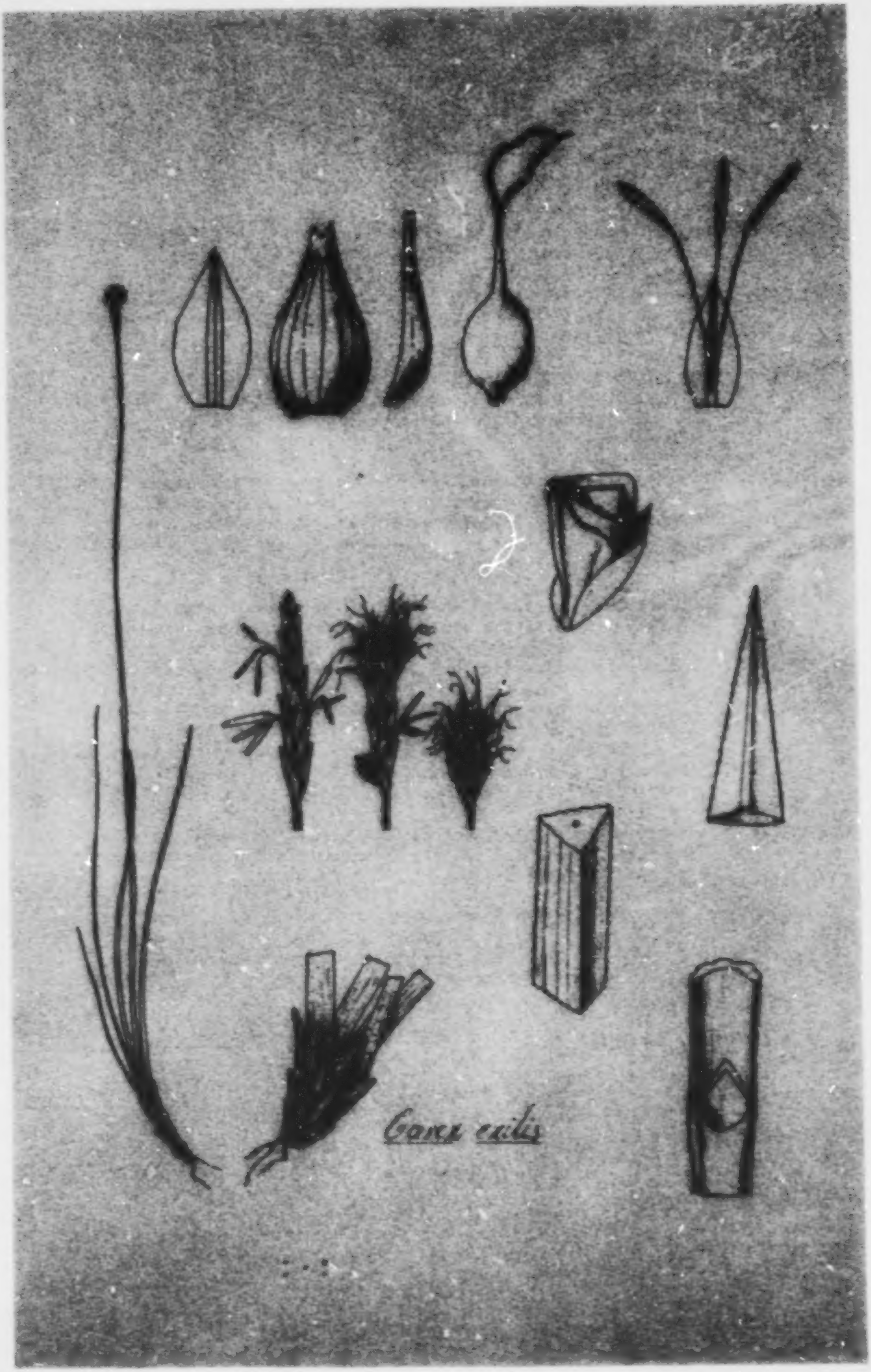


Carex duryana

STELLULATAE Kunth, Enum. Pl. 2:399. 1837.

17. CAREX EXILIS Dewey, Am. Sci. 4:351. 1866.

Rootstocks	Rhizomes and stolons almost lacking.
SHEATHS	Leaf sheaths tight; inner band hyaline, summit fulvous, concave; ligule short.
LEAVES	Forming dense tussocks, brown below sheath, light-green above, 5.0-8.0 cm long, 0.5 mm wide, stiffly ascending, attenuate, trigonous at apex, transverse-nerved at base, margins serrulate to sheath.
CULM	Solitary or cespitose, phyllopidic with 2-4 leaves near base, dark brown at base, 2.0-7.0 dm tall, considerably over-topping leaves, angles obtuse below, acute and serrulate above middle, transverse section with small central cavity, vascular bundles prominent.
SPIKE	Solitary or occasionally with 1-2 usually inconspicuous lateral spikes, variable from gynaecandrous, androgynous, to wholly staminate or pistillate, 3.0-6.0 cm long, 1.0-3.0 mm wide; bracts scale-like, cuspidate.
SCALES	Pistillate scales castaneous with hyaline margins, midrib green, trinervate, costa slightly prolonged; about equaling body of perigynium, ovate, acuminate. Staminate scales paler and smaller.
PERIGYNIA	Soon divergent, olivaceous to brown, 3.0-3.5 mm long, ovate-lanceolate, plano-convex, membranaceous, margins serrulate above middle of body, nerved ventrally, base spongy, retuse dorsally; beak 1.0 mm long, emarginate, suture hyaline.
ACHENE	Fulvous, 1.75 mm long, 2/3 as wide, trigonous, substipitate, apex articulate; style deciduous; stigmas 2, dark reddish-brown.
DISTRIBUTION	Boreal, eastern North America.
HABITAT	A co-dominant sedge on oligotrophic bogs in interior Newfoundland; occurs sporadically on oceanic mesotrophic bogs and occasionally on dwarf-shrub raised bogs; also found on subalpine slope fens and shallow peaty soils on serpentine barrens.
FORAGE VALUE	Because it grows on exposed, windswept situations it is a source of winter forage for wildlife.
CHROMOSOME NUMBER	2n = 62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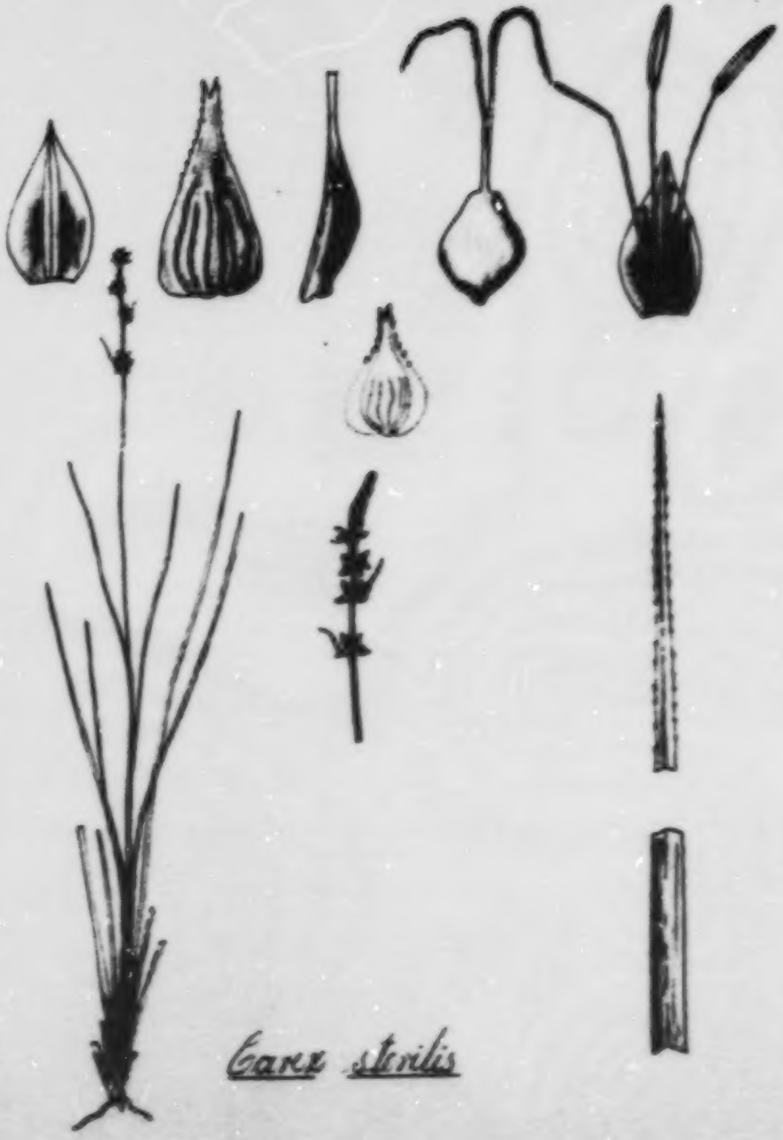
Carex exilis

18. CAREX STERILIS Willd., Sp. Pl. 4:208. 1805.

ROOTSTOCKS	Black, short fibrillose.
SHEATHS	Leaf sheaths tight, inner band hyaline, summit fulvous, thickened, concave; ligule wider than long.
LEAVES	Green, 1.0-3.0 dm long, 1.0-2.5 mm wide, stiff, convolute below, involute and attenuate near apex, margins of uppermost 1/3 serrulate.
CULM	Phyllopodic, with 3-4 leaves on lower 1/4, dark-brown at base, 1.5-6.0 dm tall, 0.5-1.5 mm thick near upper sheath, firm, filiform, angles obtuse below, acute and serrulate on upper 1/3.
SPIKES	Heads 2.0-5.0 cm long, with 3-6 spikes, variable from gynaecandrous, androgynous to wholly staminate (usually terminal) or pistillate, approximate or distant, 3-15 flowered; lowermost bracts setaceous, serrulate, uppermost becoming scale-like.
SCALES	Pistillate scales castaneous, subcoriaceous, margins hyaline, midrib green, trinervate, costa on lower scales prolonged; as long as perigynium, upper scales acuminate to obtuse. Staminate scales smaller, paler, acute or obtuse, never cuspidate.
PERIGYNIUM	Stramineous or castaneous, subcoriaceous, 2.5-3.0 mm long, 1.5 mm wide, deltoid, plano-convex, nerves on both sides reaching 2/3 of body, base slightly retuse, substipitate dorsally, spongy; beak 1.0 mm long, hyaline dorsally emarginate, margins serrulate to upper 1/3 of body.
ACHENE	Stramineous, 1.5 mm long, 1.0 mm wide, rhomboidal with truncate summit and substipitate base; style deciduous; stigmas 2, reddish-brown, 2.5-3.0 mm long.
DISTRIBUTION	Boreal, eastern North America.
HABITAT	At edges of eutrophic fens chiefly in calcareous regions, and on serpentine barrens. Slightly hemerophilic on drier disturbed sites near these communities.
FORAGE VALUE	Insignificant.



Carex sterilis

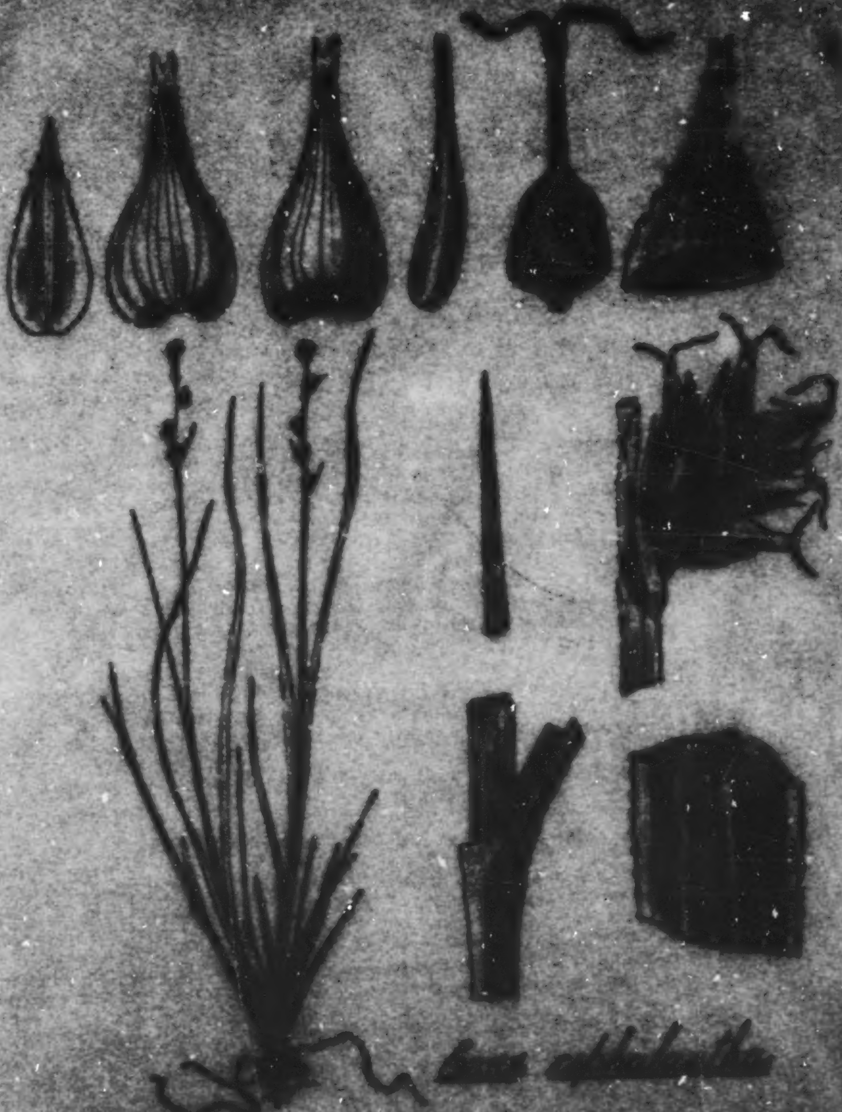
19. CAREX CEPHALANTHA (Bailey) Bickn., Bull. Torrey Bot. Club. 35:493. 1908.

ROOTSTOCKS	Stolons elongate, stramineous or fulvous.
SHEATHS	Basal sheaths brown or blackish; upper sheaths loose, thin, with green nerves and scattered transverse nerves at summit; ligule longer than broad.
LEAVES	Green, up to 3.0 dm long, commonly 1.5-2.2 dm long, 1.5-2.8 mm wide, flat to convolute becoming involute and attenuate at apex. Margins serrulate above middle and near sheath.
CULM	Aphyllopodic, with 3-4 leaves on lower 1/4, brown near base usually exceeding leaves, 0.2-1.4 mm tall, firm, angles obtuse below middle, acute and serrulate above middle, ribbing prominently sulcate, transverse section with small central cavity, vascular bundles prominent.
SPIKES	Head moniliform, 2.0-7.5 cm long, with 3-7 spikes, terminal spikes gynaecandrous, lower usually pistillate and 5-25 flowered, stramineous becoming fulvous, 0.4-1.0 cm long, echinate and subglobose; bracts setaceous, serrulate margined, 0.7-3.0 cm long or those subtending terminal spike scale-like.
SCALES	Pistillate scales brown tinged, with hyaline margins, midrib green, trinervate, the costa prominent; equal or exceeding perigynium, lance-ovate.
PERIGYNIA	Stramineous to fulvous, 3.0-4.5 mm long, ovate-lanceolate, broadest near base, narrowly bi-convex, margin of body elevated, obtuse, nerved on both sides, base retuse, substipitate, spongy; beak 1.5-2.0 mm long, narrow, emarginate, membranaceous, margins biserrulate.
ACHENE	Castaneous, 1.5-2.5 mm long, somewhat rhomboidal, broadest below middle, substipitate, lenticular; style deciduous, 1.5-2.0 mm long; stigmas 2, fulvous, 2.0 mm long.

DISTRIBUTION Boreal, transcontinental North America.

HABITAT On drier hummocks in black spruce fen forest, borders of eutrophic fens, and alder swamps.

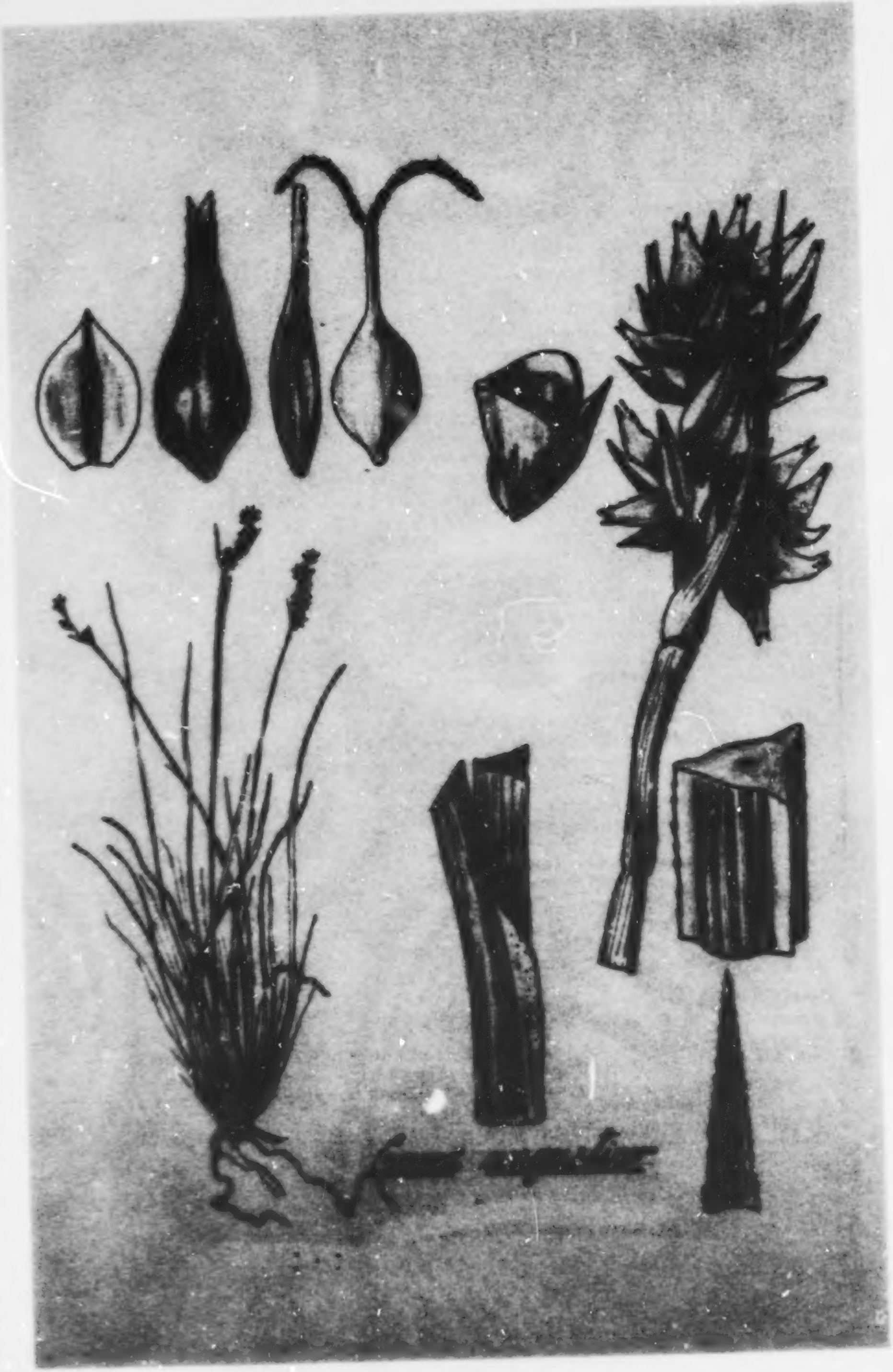
FORAGE VALUE Reasonable seed source for small birds.
CHROMOSOME NUMBER 2n = 50, 56.



20. CAREX ANGUSTIOR Mack., in Rydb. Fl. Rocky Mt. Ed. 1. 124. 1917.

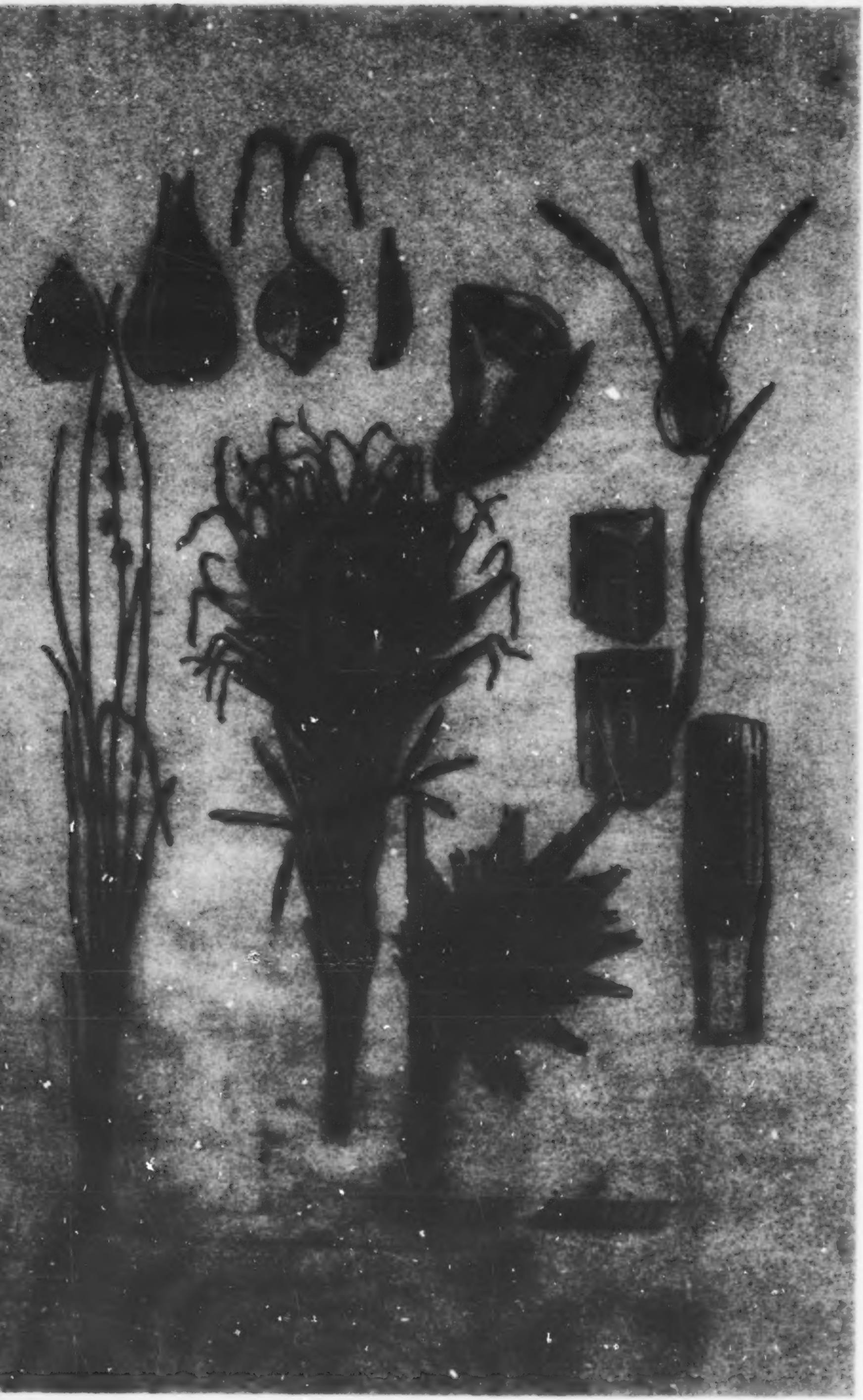
20a. var. *gracilenta* R.T. Clausen & Wahl, Rhodora. 41:30. 1939.

ROOTSTOCKS	Fulvous, mostly short, fibrillose.
SHEATHS	Leaf sheaths tight; inner band hyaline with green nerves, red-puncticulate near concave summit; ligule as long as broad.
LEAVES	Sterile shoots numerous, cespitose, fulvous at base, leaves 1.0-5.0 dm tall, 0.75-2.0 mm wide, flat to convolute becoming involute and attenuate at apex, margin scabrous on upper 2/3-1/2.
CULM	Phyllopodic, with 2-4 leaves on lower 1/3, fulvous at base, 1.0-4.0 dm tall, exceeding leaves, slender, angles obtuse below, acute and scabrous on upper 1/2, ribbing prominent, transverse section with small central cavity, vascular bundles obscure.
SPIKES	Head 1.0-2.0 cm long, spikes 3-5, approximate, the terminal spike gynaecandrous, the lower pistillate, 5-15 flowered, 4.0-6.0 mm long, echinate, subglobose; lowermost bract 1.5-2.0 cm long, setaceous with serrulate margins, upper bracts reduce to scale-like.
SCALES	Pistillate scales stramineous, margins hyaline, midrib green, trinervate, costa prolonged; about equaling body of perigynium, ovate, acuminate. Staminate scales similar.
PERIGYNIA	Fulvous, 2.5-3.5 mm long, 1.0-1.4 mm broad, lanceolate, plano-convex, margins slightly elevated and obtuse, obscurely short-nerved ventrally, base obtuse, spongy; beak as long as body, narrow, emarginate, membranaceous, margins serrulate to body.
ACHENE	Yellow, ovate, trigonous, substipitate; style deciduous; stigmas 2, reddish-brown, 2.5 mm long.
	Var. *gracilenta* Clausen and Wahl. Spikes separated in head.
DISTRIBUTION	Mainly temperate-subtropical extending into southern boreal, transcontinental North America.
HABITAT	Oligotrophic bogs, minerotrophic fens, and wet peaty areas in tuckamore and clearings in balsam fir forests, has strong hemerophilic tendencies especially in logged areas and wet trails.
FORAGE VALUE	About the same as Carex cephalantha.



21. CAREX INTERIOR Bailey, Bull. Torrey Bot. Club. 20:426. 1893.

ROOTSTOCKS	Rhizomes and stolons almost lacking.
SHEATHS	Tight, hyaline to white, with green bordered nerves, thin and concave at summit; ligule broader than long.
LEAVES	Stramineous, lustrous on both sides, 1.0-3.0 dm long, the tallest sometimes exceeding culm, 1.3-1.7 mm wide, firm, ascending, flat to convolute, contracted to acicular tip, margins serrulate to near sheath or smooth at middle.
CULM	Densely cespitose, phyllopodic, with 3-4 leaves on lower 1/4, fulvous near base, 2.0-5.0 dm tall, firm,slender, angles obtuse to acuminate, serrulate on upper 1/5, ribbing prominent, upper transverse section with small central cavity, lower transverse section lacking central cavity.
SPIKES	Head 1.0-3.0 cm long, spikes 2-6, approximate or distant, green, terminal spike gynaecandrous, clavate, laterals usually pistillate 5-20 flowered, 4.0 mm long, echinate, subglobose; lowermost bract 1.5-2.0 cm long, serrulate,upper bracts reduced to scale-like.
SCALES	Pistillate scales, fulvous, margins hyaline, midrib green, trinervate; 1/2 as long as perigynium, ovate, obtuse or acuminate. Staminate scales paler, smaller, ovate-lanceolate.
PERIGYNIUM	Olivaceous becoming brown, 2.25-3.25 mm long, 1.0-2.0 mm broad, deltoid or oblong-ovate, plump, firm, plano-convex, margins of body slightly elevated, lower 2/3 of body strongly nerved dorsally, finely nerved ventrally, base retuse, substipitate, spongy; beak 1/3 as long as body, light reddish brown, bidentate dorsally, membranaceous, the margins serrulate to body.
ACHENE	Loosely enveloped by perigynium, fulvous, 1.5-2.0 long, suborbicular, lenticular, substipitate, apex articulate; style deciduous, pale; stigmas 2, reddish-brown, 2.5-3.0 cm long.
DISTRIBUTION	Temperate-boreal, transcontinental North America.
HABITAT	Essentially a hemerophilic species of wet mucky soils in disturbed forests; prefers base-rich soils and occurs occasionally on borders of eutrophic fens.
FORAGE VALUE	Good seed source for small birds.



22. CAREX ECHINATA Murray, Prod. Stirp. Gott. 76. 1779.

ROOTSTOCKS Rhizomes and stolons almost lacking.

SHEATHS Basal sheaths light-brown; leaf sheaths tight, inner band hyaline with green nerves, concave; ligule broader than long.

LEAVES Stramineous, lustrous, on both sides, 1.0-3.0 dm long, the longest exceeding inflorescence, 1.0-3.0 mm wide, firm, ascending, flat to convolute, contracted to acicular tip, margins serrulate to sheath.

CULM Densely cespitose, phyllopodic, with 3-4 leaves on lower 1/3, 1.5-5.0 dm tall, firm, slender, angles obtuse to acuminate, serrulate on upper 1/5; ribbing prominent, upper transverse section lacking central cavity.

SPIKES Head 1.0-3.5 cm long, terminal spike, gynaecandrous, with short, clavate, staminate base, lateral spike 1-5, mostly pistillate, 8-12 flowered, strongly echinate, subglobose; lowermost bract setaceous, serrulate, barely exceeding spike, uppermost reduced to scale-like.

SCALES Pistillate scales fulvous, midrib green, narrowly trinervate, blade 1/2 as long as perigynium, ovate, acuminate. Staminate scales paler, larger, oblong, obtuse.

PERIGYNIUM Fulvous, 2.5-3.0 mm long, 1.0-2.0 mm broad, deltoid, plump, firm, plano-convex, margins of body barely elevated, nerved dorsally, obscurely nerved ventrally, base retuse, substipitate, spongy; beak 1/3-1/2 as long as body, emarginate, margins serrulate to body.

ACHENE Loosely enveloped by perigynium, fulvous, 1.5-2.0 mm long, suborbicular, lenticular, substipitate, apiculate; style pale, articulate; stigmas 2, reddish brown, 2.5-3.0 mm long.

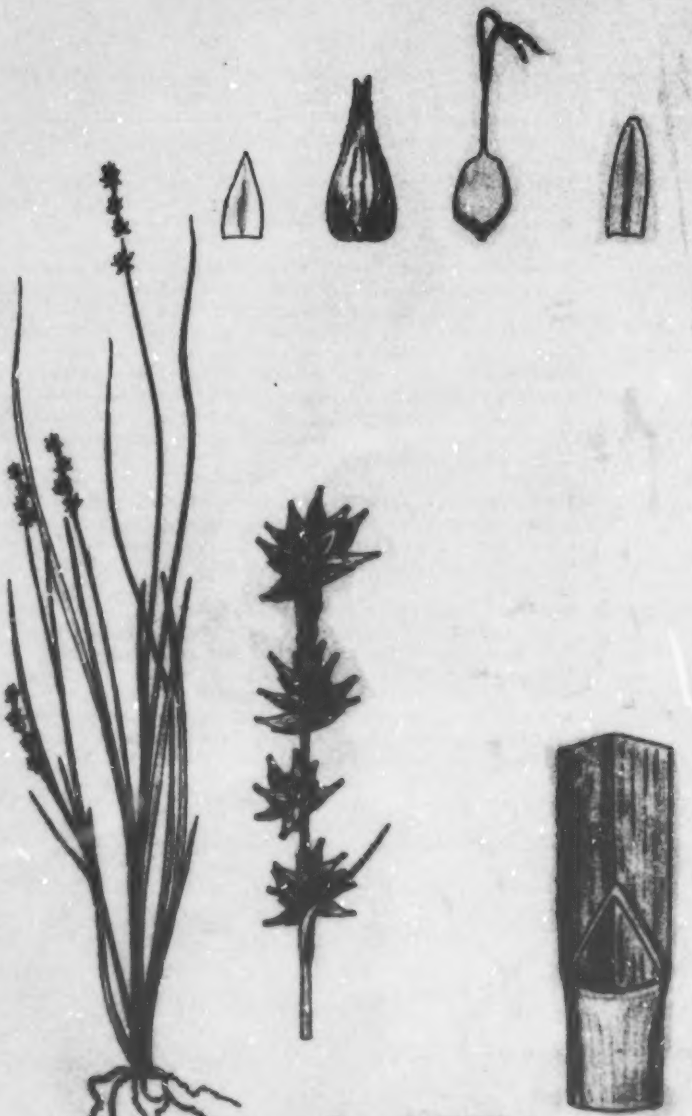
(See taxonomic note under C. cephalantha.)

DISTRIBUTION Temperate-boreal, transcontinental North America, also disjunct in Eurasia and Australasia.

HABITAT Hemerophilic species of moist roadside wastes; often shares the same habitat as C. interior but more tolerant of drier situations.

FORAGE VALUE Good seed source for small birds.

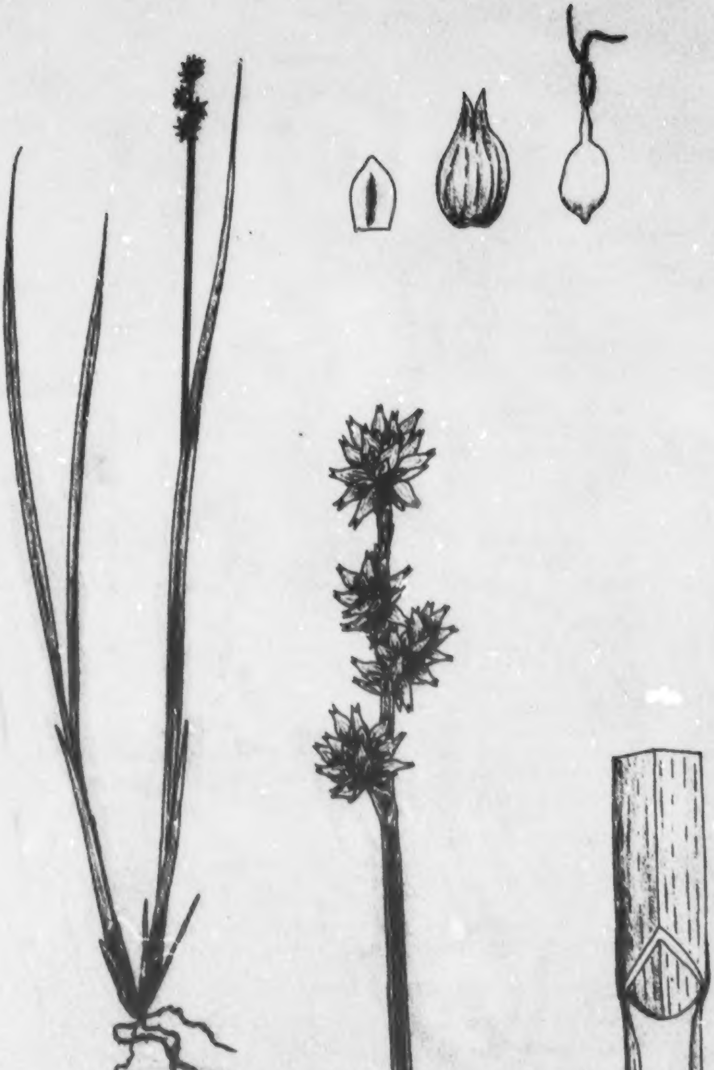
CHROMOSOME NUMBER 2n = 58.



Carex muricata

23. CAREX WIEGANDII Mack., in Caric. N. Am. Fl. 18:108. 1931.

ROOTSTOCKS	Rhizomes and stolons almost lacking; roots short, fibrous.
SHEATHS	Basal sheaths dark brown; leaf sheaths tight, inner band hyaline, concave; ligule as broad as long.
LEAVES	Pale green, firm, principal leaves prolonged, 3.0-5.0 mm long, plicate, contracted to short acicular tip, margins serrulate on upper 1/2.
CULMS	Densely cespitose, sterile culms numerous; fertile culms 0.5-1.0 mm tall, stiffly erect, 3.0-3.5 mm thick, exceeding leaves, angles obtuse and smooth, sides principally 2-3 ribbed, transverse section with round central cavity.
SPIKES	Head 2.0-5.0 cm long, terminal spike gynaecandrous, with 10-15 mm long with clavate staminate base and 20-40 perigynia at summit; lateral spikes 1-5, mostly pistillate, 10-30 flowered, approximate, subglobose, echinate; lowermost bract scale-like, inconspicuous.
SCALES	Pistillate scales fulvous-tinged, margins hyaline, midrib green, slenderly trinervate, costa reaching to near summit, blade shorter than perigynium, ovate, acuminate. Staminate scales larger, oblong, obtuse.
PERIGYNIUM	Fulvous to brown, 2.5-3.0 mm long, ovate, 1/2 as broad, plump, firm, plano-convex, nerved dorsally, obscurely nerved or nerveless ventrally, base retuse, spongy; beak 1/4 as long as body, strongly emarginate.
ACHENE	Loosely enveloped by perigynium, pale-brown, suborbicular, lenticular, substipitate, apiculate; style pale, articulate; stigmas 2, reddish-brown, 2.5-3.0 mm long.
DISTRIBUTION	Boreal, eastern North America.
HABITAT	Mesotrophic fens and occasionally in alpine fir tuckamore.
FORAGE VALUE	Good seed source for small birds.



Carex wiegandii

OVALES Kunth, Enum. Pl. 2:394. 1837.

24. CAREX SCOPARIA Schk., in Willd. Sp. Pl. 4:230. 1805.

24a. forma *condensa* (Fern.) Kukenth., in Engler, Pflanzenr. 4(20):203. 1909.

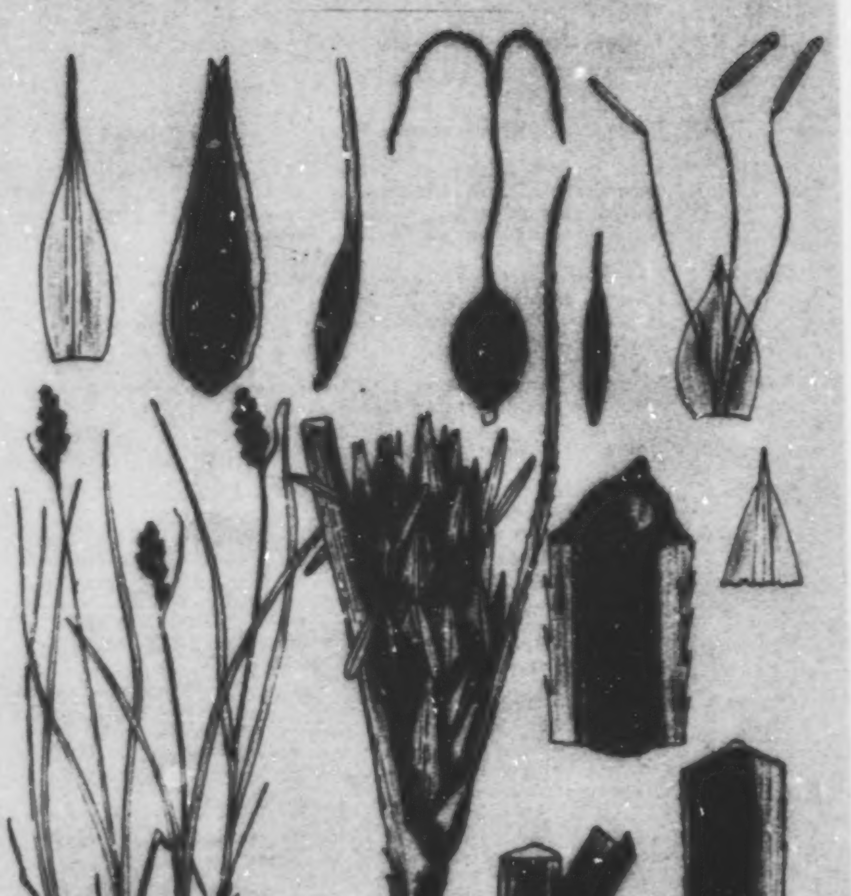
24b. forma *moniliformis* (Tuckerm.) Kukenth., in Engler, Pflanzenr. 4(20):203. 1909.

24c. forma *subturbinata* (Fern. & Wieg.) Fern., Rhodora 44:284. 1942.

ROOTSTOCKS	Rhizomes short, not freely stoloniferous.
SHEATHS	Close, slender; ligule as long as broad, to longer than broad.
LEAVES	From approximate leafy tufts, leaves firm, ascending, stramineous, 2.0-9.0 dm long, 1.0-3.0 mm wide, plicate to flat, margins scabrous in upper 1/3.
CULM	Densely cespitose. 0.7-1.0 m tall, usually exceeding leaves, erect, stout, sides 6-ribbed, angles obtuse on lower 2/3, winged and scabrous on upper 1/3, transverse section with large central cavity.
SPIKES	Head dense or open, 1.5-6.0 cm long, of 3-12 gynaecandrous spikes; spikes stramineous to fulvous, 0.5-1.6 cm long, ovoid or subglobose, 4-10 flowered; bract subtending lowermost spike, setaceous, 2.0-3.0 cm long, serrulate margined pistillate scale.
SCALES	Brownish with pale margins, midrib green, trinervate, costa prolonged and serrulate; shorter than perigynia, ovate-lanceolate. Staminate scale paler much smaller, ovate-oblong, acuminate, costa slightly prolonged.
PERIGYNIA	Translucent stramineous to brown, 4.0-7.0 mm long, 1.2-2.6 mm wide, thin and scale-like, ovate-lanceolate, barely distended over achene, nerved on both sides, margins winged to base and serrulate on upper 1/2, apex emarginate.
ACHENE	Brown, 1.0 mm long, suborbicular, lenticular, substipitate, articulate; style deciduous, 3.0 mm long, lax; stigmas 2, reddish-brown, 3.0 mm long.

24a. forma *condensa*. Head dense, 1.5-3.0 cm long; spikes dense, acute.
24b. forma *moniliformis*. Head flexuous, moniliform, 3-6 cm long; spikes remote, acute.
24c. forma *subturbinata*. Head moniliform, 3-5 cm long; spikes approximate, turbinate.

DISTRIBUTION	Temperate-boreal, transcontinental North America.
HABITAT	Hemerophilic species of dry roadside wastes; occasionally found in gravelly soils at edge of alder swamps and mountain maple thickets.
FORAGE VALUE	Has a low nutrition value and seldom grazed, but produces seed abundantly.


Carex scoparia

25. CAREX PROJECTA Mack., Caric. N. Am. Fl. 18:165. 1931.

ROOTSTOCKS Stolons loosely-spreading.

SHEATH Basal sheaths persistent, friable, fibrose when old, upper sheaths loose, prominently veiny; inner band veinless and prolonged, summit hyaline, concave; ligule 0.5-1.0 mm high, obtuse, as long as broad.

LEAVES Leaf base auriculate, leaves spreading, 3.0-4.0 mm wide, lustrous on both sides, flat to plicate, thick, prominently 5-6 ribbed, margins scabrous on upper 1/2, midrib scabrous dorsally on upper 1/3.

CULM Cespitose, aphyllopodic, with 4-6 somewhat distichous leaves, 0.3-1.2 m tall, slightly exceeding leaves, inconspicuously sulcate, angles acutish and scabrous on upper 1/4, transverse section with large central cavity.

SPIKES Head moniliform to dense, flexuous, 3.0-8.0 cm long, 0.5-1.5 cm thick; spikes 6-15, gynaecandrous, stramineous to fulvous, 5.0-8.0 mm long, ellipsoid-obovoid; with 15-30 ascending or spreading perigynia; bracts scale-like, midrib leuconeurous.

SCALES Pistillate scales brown, with narrow hyaline margins, midrib green, trinervate, 1.5-2.5 mm long; about 1/2 as long as perigynium, lanceolate, acute. Staminate scales paler, somewhat larger, ovate, acuminate.

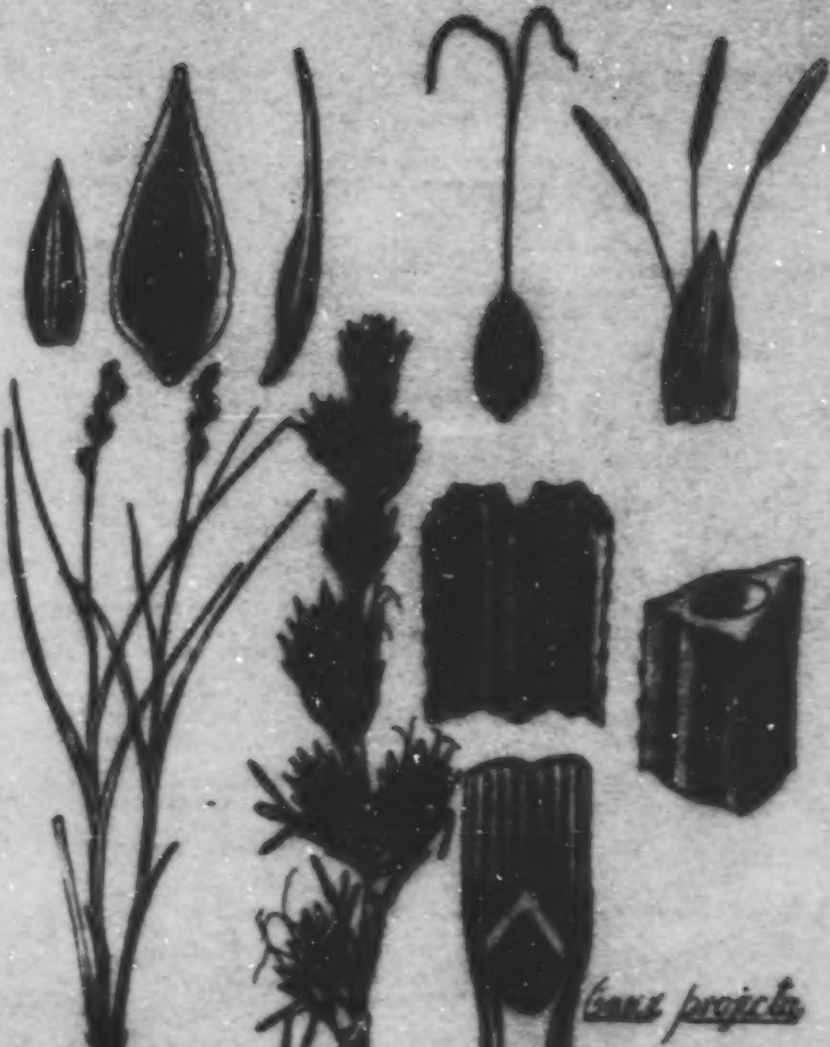
PERIGYNIA Translucent, brown, 3.0-5.0 mm long, 1.0-2.0 mm broad, thin and scale-like, ovate-lanceolate, barely distended over achene, nerved on both sides, wing gradually narrowed from middle to base, base substipitate, margins serrulate on upper 1/2, bidentulate.

ACHENE Dark-brown, 0.5 mm long, elliptic, lenticular, substipitate, apex articulate; style deciduous, 2.5-4.0 mm long; stigmas 2, reddish brown, 2.0 mm long.

DISTRIBUTION Boreal, eastern North America.

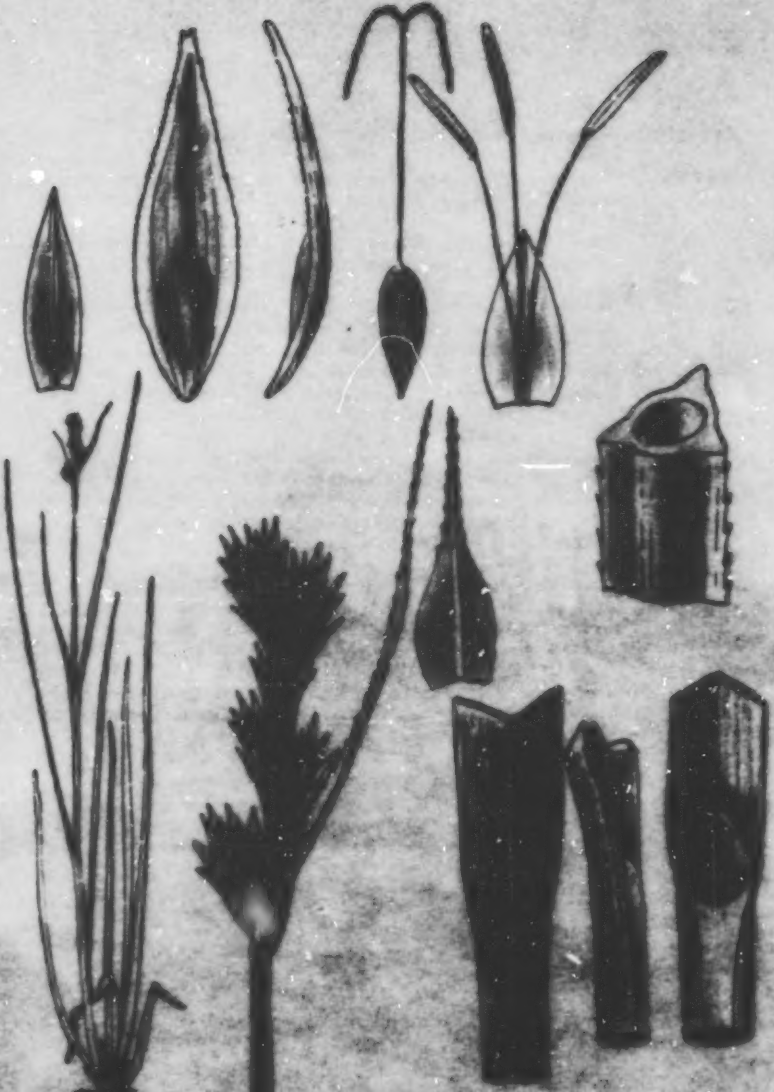
HABITAT Edges of eutrophic fens, alder swamps; occasionally in balsam fir tuckamore and mountain maple thickets in calcareous regions. Has hemerophilic tendencies on disturbed sites in these communities.

FORAGE VALUE Generally low nutritional value but produces abundant seeds for small birds.


Carex projecta

26. CAREX CRAWFORDII Fern., Proc. Am. Acad. 37:478. 1902.

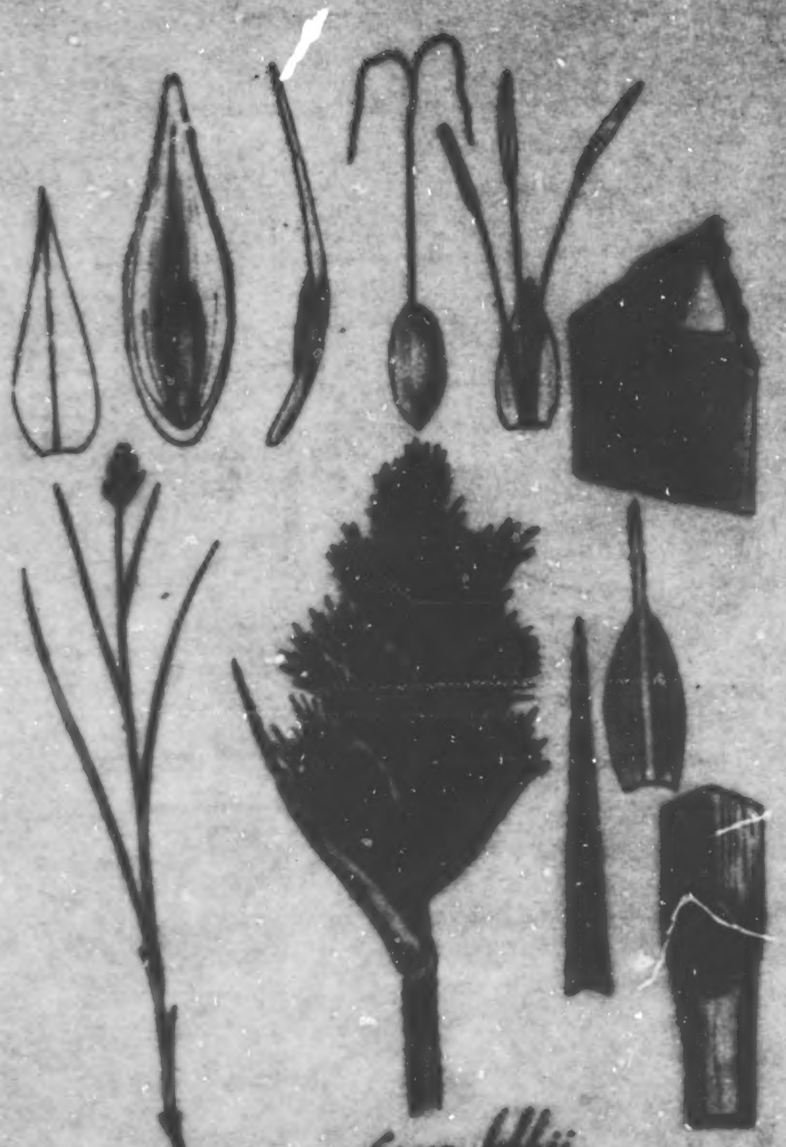
ROOTSTOCKS	Basal sheaths persistent, friable, fibrose when old, upper sheaths close, prominently veiny, summit hyaline, concave; ligule as long as broad.
LEAVES	From approximate tufts, firm, ascending, 1.0-6.0 dm long, 1.0-3.0 mm wide, plicate to flat, margins scabrous on upper 1/3.
CULM	Densely cespitose, phyllopodic, with 4-6 somewhat distichous leaves, 1.0-8.5 dm tall, usually exceeding leaves, slender, erect, sides faintly 6-7 ribbed, angles winged and scabrous on upper 1/2, transverse section with large central cavity.
SPIKES	Head moniliform; 1.0-3.0 cm long, spikes 5-10, approximate or crowded, stramineous or fulvous, 3.0-11.0 mm long, 0.5-2.0 mm wide, subglobose or oblong; bracts subtending 2 lowermost spikes setaceous, 3.0-7.0 cm long, serrulate margined, bracts on upper spikes reduced and scale-like, with prolonged leuconeurous midrib.
SCALES	Pistillate scales fulvous, with narrow hyaline margins, midrib green, trinervate, 1.5-2.5 mm long; about 1/2 as long as perigynium, lanceolate, acute. Staminate scales paler, somewhat larger, ovate, acuminate.
PERIGYNIA	Translucent, fulvous, 3.0-4.5 mm long, 1.0-2.0 mm broad, thin and scale-like, lanceolate, base acute or sub-acute, barely distended over achene, faintly nerved on both sides, winged to base, margins serrulate on upper 2/3 bidentulate.
ACHENE	Light-brown, 0.5 mm long, ovoid with acutish base, apex articulate; style deciduous, 2.5-4.0 mm long; stigmas 2, reddish-brown, 2.0 mm long.
DISTRIBUTION	Temperate-boreal, transcontinental North America.
HABITAT	Hemerophilic species of dry sites in settlements and along roadsides.
FORAGE VALUE	Good seed source for urban-dwelling birds.



Carex crawfordii

27. CAREX BEBBII Olney, Caric. Bor. Am. 3. 1871, and Fern., Proc. Am. Acad. Sci. 37:478. 1902.

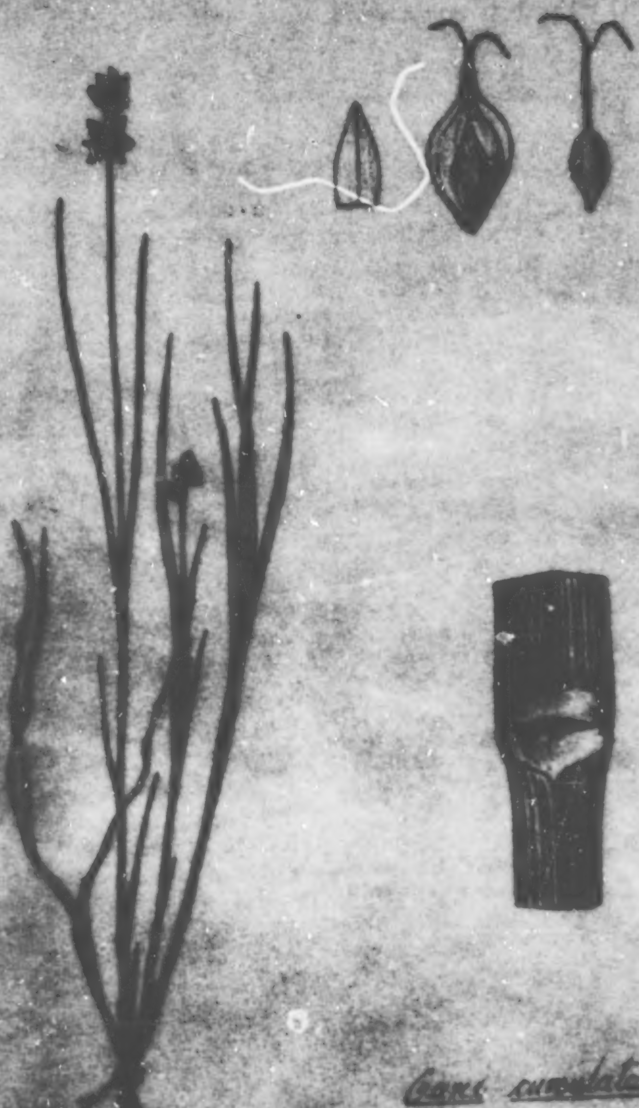
ROOTSTOCKS	Rhizomes short, not freely stoloniferous.
SHEATHS	leaf-sheaths tight; inner band hyaline, concave at summit; ligule obtuse, as long as broad.
LEAVES	Firm, ascending, fulvous, 3.0-6.0 dm long; 1.5-4.5 mm wide, plicate to flat, margins scabrous on upper 1/3.
CULMS	Densely cespitose, aphyllopodic, with 3-4 somewhat distichous leaves, subapproximate at summit on sterile culms, fertile culms 2.0-9.0 dm tall, usually exceeding leaves prominently 2-ribbed, angles winged, scabrous on upper 1/3, transverse section with large triangular central cavity and prominent vascular bundles.
SPIKES	Head compact, 1.0-2.5 cm long, ovoid-elliptic, spikes 3-12 gynaecandrous, brownish, 5.0-9.0 mm long, ovoid-elliptic; lowermost bract setaceous, 0.5-1.25 cm long, margins serrulate; upper bracts gradually reduced and scale-like, with leuconeurous midrib.
SCALES	Pistillate scales, brown, midrib green, slenderly trinervate, with obscurely prolonged costa; 2/3 to as long as perigynium, acute. Staminate scales paler, 1/2 as long, ovate-oblong, acuminate.
PERIGYNIA	Ascending, translucent, fulvous, 2.0-4.0 mm long, 1.0-2.0 mm broad, thin and scale-like,lance-ovate, base rounded, barely distended over achene, nerveless or obscurely short-nerved ventrally, nerveless dorsally winged to and including base, margins serrulate on upper 2/3; apex,bidentulate.
ACHENE	Light-brown, 0.5 mm long, oval, obscurely substipitate, articulate; style, deciduous 3.0 mm long; stigmas 2, reddish-brown, 2.5 mm long.
DISTRIBUTION	Boreal, transcontinental North America.
HABITAT	Hemerophilic species occupying the same sites as *C. scoparia* and *C. crawfordii*.
FORAGE VALUE	Same as *C. crawfordii*.



Carex hallii

28. CAREX CUMULATA (Bailey) Mack., Bull. Torrey Bot. Club. 49:366. 1923.

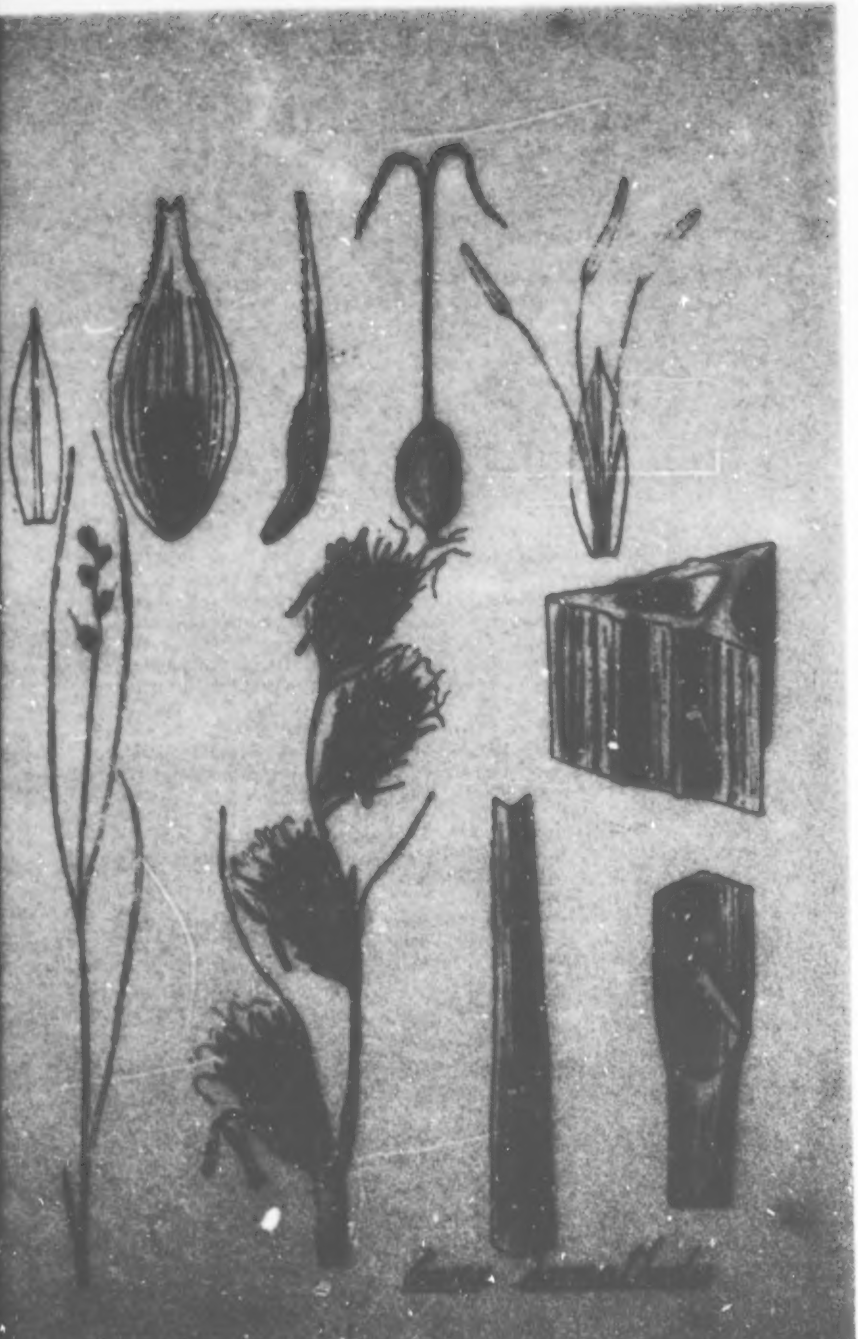
ROOTSTOCKS	Rhizomes short not freely stoloniferous.
SHEATHS	Basal sheaths brown, persistent, clothed with marcescent leaves; leaf-sheaths loose, veined near summit, prolonged; ligule obtuse, as long as broad.
LEAVES	Ascending-divergent, stramineous, 0.7-2.5 dm long, 3.0-5.0 mm wide, plicate to flat, scabrous-margined on upper 1/4, thickish.
CULMS	Densely cespitose, aphyllopodic, with 2-4 somewhat distichous leaves, 0.3-1.0 m tall, exceeding leaves, sides 2-ribbed, angles acute,smooth except near summit, transverse section with large central cavity, vascular bundles conspicuous.
SPIKES	Head compact or slightly open, 2.0-4.0 cm long, spikes 5-30, upper gynaecandrous, stramineous, 0.5-1.0 cm long, 5.0-8.0 mm wide, ellipsoid-ovoid, tapering to summit; bracts inconspicuous, scale-like, cuspidate.
SCALES	Stramineous or hyaline with fulvous-tinged summit, midrib green uni - or tri-nervate; 2/3 as long as perigynium, lance-attenuate, obtuse or acute.
PERIGYNIA	Translucent, fulvous, 3.0-4.0 mm long, 2.0-2.5 mm wide, thin, scale-like, ovate, base obtuse, barely distended over achene, nerved dorsally, winged to base; beak 0.5-1.0 mm long, emarginate, margins serrulate to body.
ACHENE	Fulvous, 1.0-2.0 mm long, ovate, lenticular, substipitate, apiculate; style deciduous, 2.0-2.5 mm long; stigmas 2, reddish, 2.0-2.5 mm long.
DISTRIBUTION	Boreal, eastern North America.
HABITAT	Rare, has been found only once at Gambo on dry sandy soils in a gravel pit.
FORAGE VALUE	Would be similar to *C. crawfordii* if common.



Carex cuspidata

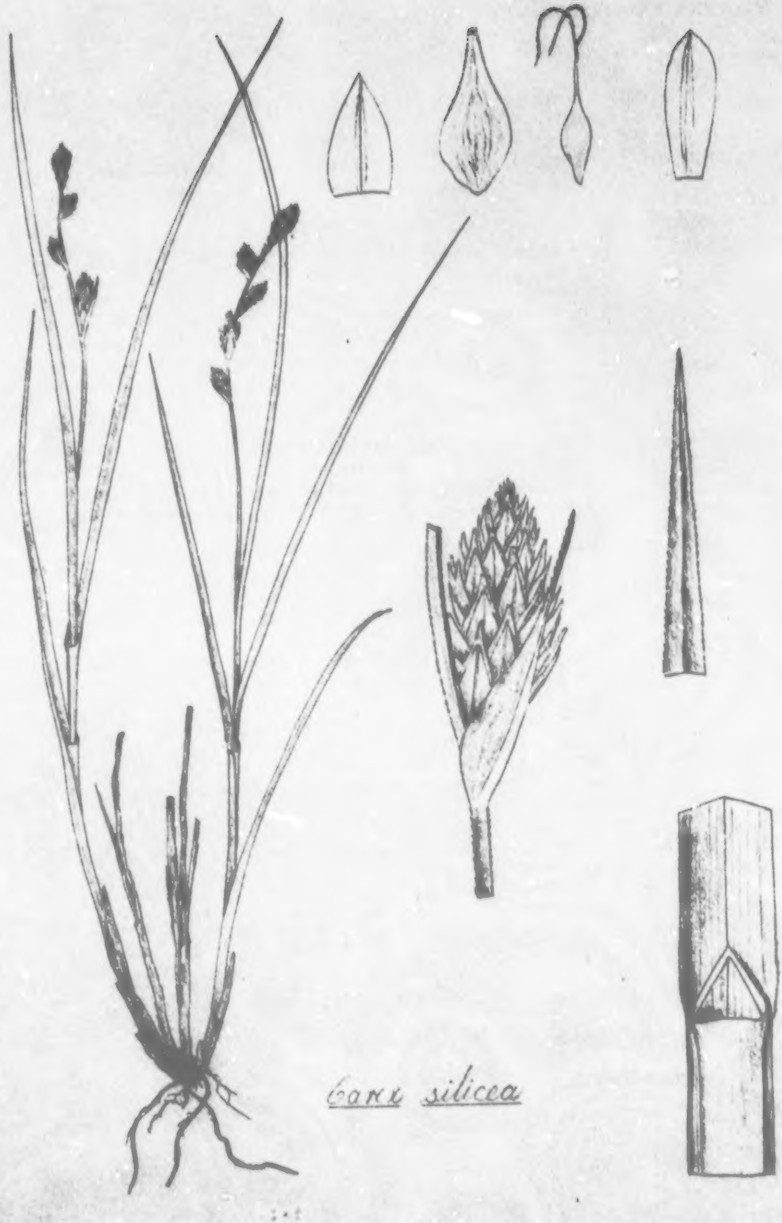
29. CAREX HORMATHODES Fern., Rhodora 8:165. 1906.

ROOTSTOCKS	Rhizomes short, not freely stoloniferous.
SHEATHS	Close, prominently veiny to near summit, summit hyaline, concave; ligule obtuse, as long as broad.
LEAVES	Ascending, stramineous, 1.0-6.0 dm long, 1.0-2.5 mm wide, plicate to flat, scabrous margined on upper 1/4.
CULMS	Densely cespitose, aphyllopodic, with 3-6 somewhat distichous leaves, 0.2-9.5 dm tall, usually exceeding leaves, sides 2-ribbed, angles winged and smooth except near summit, transverse section with large somewhat triangular central cavity, vascular bundles conspicuous.
SPIKES	Head moniliform, flexuous or arching, 3-6 cm long, spikes 3-9 gynaecandrous, ferruginous to stramineous, 0.5-1.5 cm long, 5.0-8.0 mm thick, rhomboid-elliptic, tapering to summit and base, the terminal spike tapering to short staminate base; 2 lowermost bracts 0.8-1.5 cm long, upper reduced and scale-like.
SCALES	Stramineous, midrib green, trinervate, the costa prolonged; 2/3 as long as perigynium, lance-attenuate.
PERIGYNIA	Translucent, fulvous, 4.5-6.0 mm long, thin, scale-like, ovate, base obtuse or rounded, barely distended over achene, 7-10 nerved on both sides, winged to near base; beak 1.0 mm long, emarginate, margins serrulate to body.
ACHENE	Dark brown, 1.0 mm long, ovate, lenticular, substipitate, apiculate; style deciduous, 3.0-4.0 mm long; stigmas 2, reddish-brown, 2.0-2.5 mm long.
DISTRIBUTION	Boreal, eastern North America.
HABITAT	Restricted to marshes in sheltered valleys of western Newfoundland. Has hemerophilic tendencies on disturbed sites close to marshes.
FORAGE VALUE	Good seed source for marsh birds.



30. CAREX SILICEA Olney, Proc. Am. Acad. 7:393. 1868.

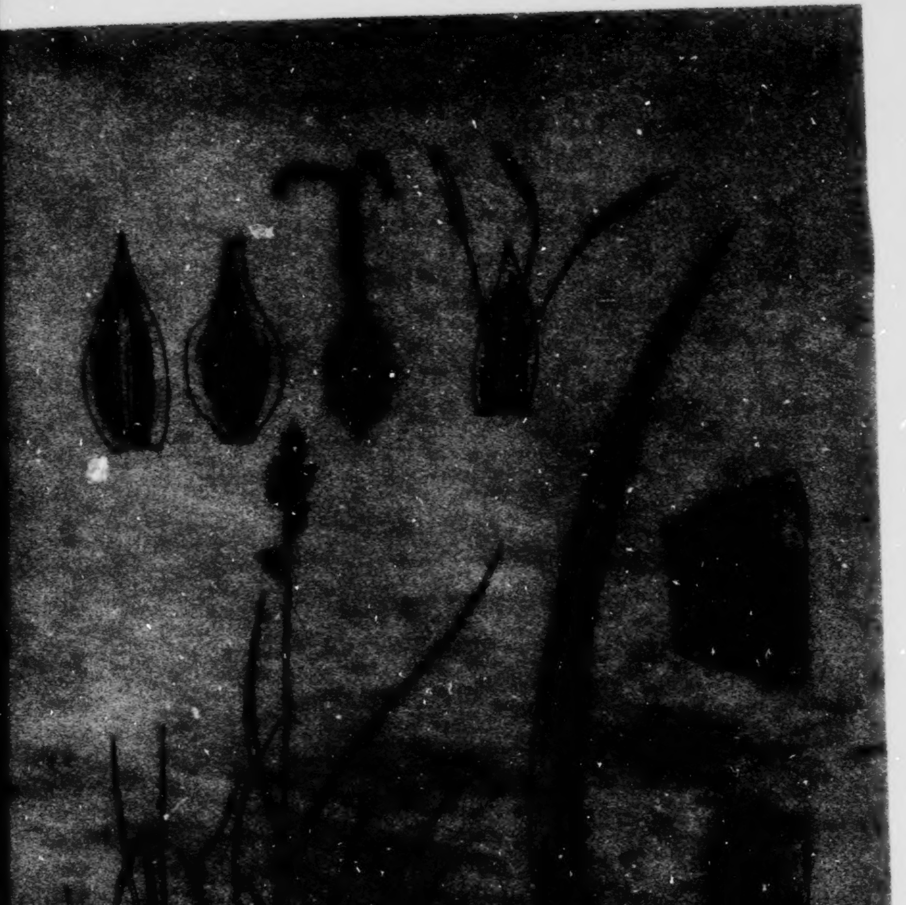
ROOTSTOCKS	Rhizomes and stolons short, roots brown to fulvous 1.0-1.5 mm thick.
SHEATHS	Basal sheaths, persistent, dark-brown; leaf-sheath short; inner band prolonged, hyaline and truncate at summit, leaf base with auricles; ligule as long as broad.
LEAVES	From small loose tufts, ascending, glaucous green, lustrous 1.0-8.0 cm long, 3.0-4.0 mm wide, rigid, plicate, becoming involute near summit, margins scabrous on upper 1/2.
CULMS	Wiry, aphyllopodic with 4-6 somewhat distichous leaves, usually glaucous, 1.5-8.0 dm tall, usually exceeding leaves, sides prominently 3-ribbed, angles obtuse and smooth, except near summit, transverse section with large central cavity.
SPIKES	Head arching, moniliform, 0.3-1.0 dm long; spikes 3-12 distant, appressed-ascending, 0.5-1.5 cm long, obovoid, clavate at base, silvery-brown; bracts scale-like, inconspicuous or the lowermost barely exceeding scale.
SCALES	Pistillate scales hyaline, midrib green, slenderly trinervate; shorter than perigynium, ovate-lanceolate, acuminate.
PERIGYNIA	Translucent, stramineous or fulvous-tinged, 3.5-5.0 mm long, 2.0-3.0 mm broad, ovoid, scale-like, broadly winged to base, nerved; beak 1.0 mm long, terete margins obscurely serrulate at summit.
ACHENE	Fulvous, 2.0 mm long, obovoid, lenticular, substipitate, apiculate; style persistent, 1.0-1.5 mm long; stigmas 2, light-brown, 2.0 mm long.
DISTRIBUTION	Boreal, endemic to the Gulf of St. Lawrence area.
HABITAT	Rare species of coastal sand dunes of western Newfoundland.
FORAGE VALUE	Insignificant.



Carex silicea

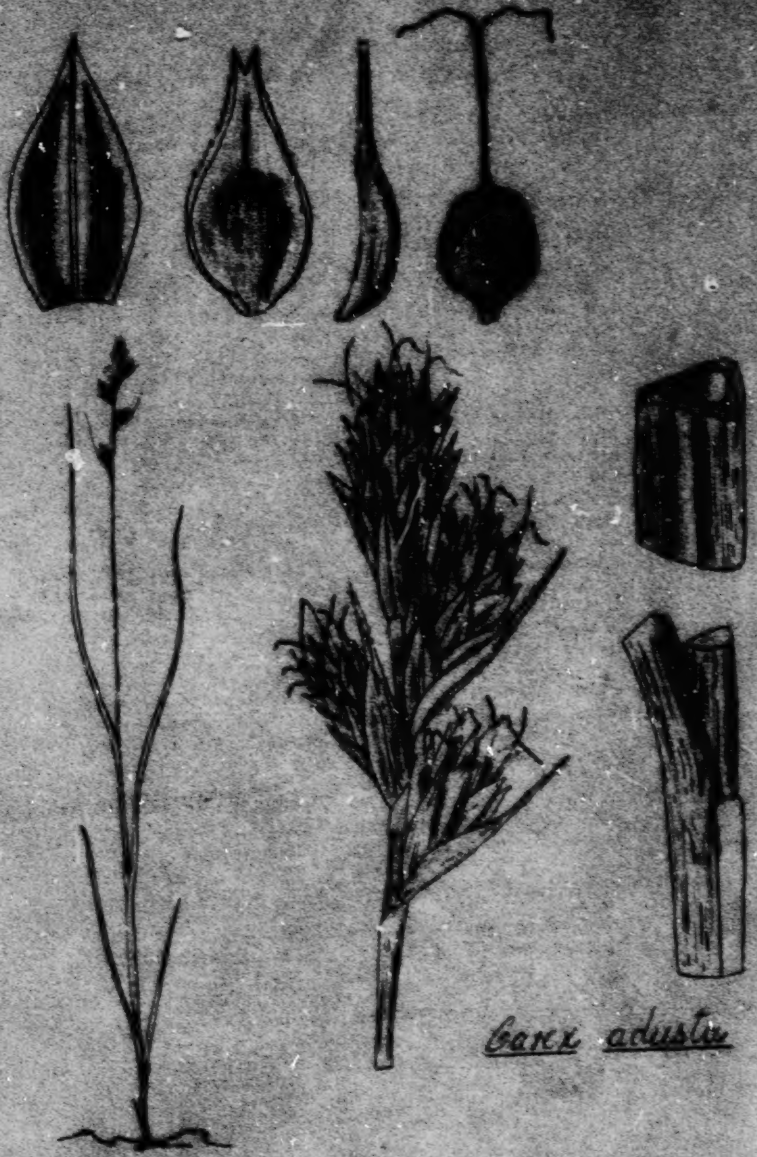
31. CAREX LEPORINA L., Sp. Pl. 1:973. 1753.

ROOTSTOCKS	Rhizomes freely stoloniferous, roots brown, 1.0-1.5 mm thick.
SHEATHS	Close, prominently veiny to near concave summit; ligule hyaline, as long as broad.
LEAVES	Ascending to recurved, 2.0-4.0 dm long, 1.5-4.0 mm wide, plicate to flat, scabrous margined on upper 1/4.
CULMS	Densely cespitose, phyllopodic, with 4-7 somewhat distichous leaves, sterile culms septate-nodulose at sheath, fertile culms, ascending, 2.0-8.0 dm tall, usually exceeding leaves, sides prominently 3-ribbed, angles obtuse and scabrous on upper 1/4, transverse-section with large triangular central cavity.
SPIKES	Head interruptedly sub-cylindric, ellipsoid or ovoid, 1.8-3.5 cm long, spikes 3-6, approximate, gynaecandrous, ferruginous or brown, 0.8-1.4 mm long; lowermost bract 2.0-4.0 cm long, the upper reduced and scale-like.
SCALES	Pistillate scales reddish brown, with broad hyaline margin, midrib green, trinervate, costa slightly prolonged; about equaling or exceeding perigynium, obtuse to acute. Staminate scale paler, smaller.
PERIGYNIA	Translucent, green, becoming pale brown, 3.8-4.5 mm long, 1.8-2.3 mm broad, thin and scale-like, ovoid, nerved on both sides, winged to base; beak 1.0 mm long, margin serrulate to body.
ACHENE	Brown, 2.0 mm long, obovoid, lenticular, substipitate, articulate; style persistent, 1.5 mm long; stigmas 2, reddish-brown, 2.0 mm long.
DISTRIBUTION	Temperate-boreal, disjunct cosmopolitan mainly of amphiatlantic distribution and suspected of being introduced to North America.
HABITAT	Hemerophilic species of dry and moist sites in settlements.
FORAGE VALUE	Good seed source for small birds and rodents.
CHROMOSOME NUMBER	2n = 64.



32. CAREX ADUSTA Boott, in Hooker, Fl. Bor. Am. 2:215. 1840.

ROOTSTOCKS	Rhizomes and stolons short, blackish, fibrillose.
SHEATHS	Tight; inner band hyaline, veiny to near summit, thin, summit slightly fulvous, prolonged truncate; ligule as long as broad.
LEAVES	Ascending, stramineous, 0.5-2.0 cm long, 2.0-4.0 mm wide, flat or margins scabrous in upper 1/2.
CULMS	Stiffly erect, aphyllopodic with 4-7 leaves, 2.0-8.0 dm tall, considerably exceeding leaves, sides 2-ribbed, angles obtuse and smooth, except near summit, transverse section with large triangular central cavity.
SPIKES	Head erect, densely crowded, 1.0-4.0 cm long, linear-cylindric to lance-ovoid; spikes 1-15, gynaecandrous, olivaceous, 0.8-1.2 cm long, subglobose, short-clavate at base; lowermost bracts dilated, 0.8-2.5 cm long, upper reduced to scale-like appendages.
SCALES	Pistillate scales reddish-brown, narrow hyaline margins, midrib paler, trinervate, the costa slightly prolonged; concealing perigynium, ovate, acute or acuminate. Staminate scales similar.
PERIGYNIA	Ascending,slightly translucent, brown, lustrous, 4.2-5.2 mm long, ovate, concave-convex, finely nerved dorsally below middle, distended by achene, margin winged on upper 2/3, serrulate above middle; beak 1.0 mm long, emarginate.
ACHENE	Dark brown, somewhat rhomboidal, substipitate, lenticular, articulate; style deciduous, slender, 2.5 mm long; stigmas 2, reddish-brown, 1.5 mm long.
DISTRIBUTION	Boreal, transcontinental North America.
HABITAT	Hemerophilic species of dry sites most frequently along logging roads through disturbed forest.
FORAGE VALUE	Good seed source for small birds.



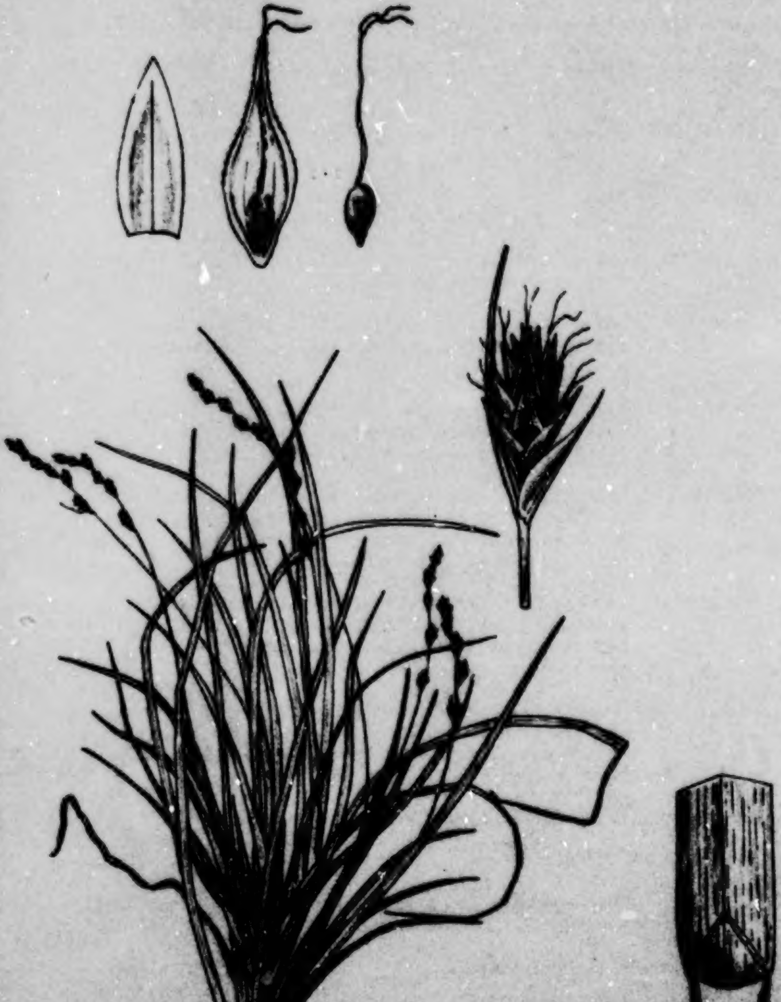
Carex adusta

33. CAREX AENEA Fern., Proc. Am. Acad. 37:480. 1902.

ROOTSTOCKS	Rhizomes and stolons short, blackish, fibrillose.
SHEATHS	Tight, thin, hyaline with ribbons in centre, summit yellowish-tinged, concave, short-prolonged; ligule as long as broad to longer than broad.
LEAVES	Weakly ascending, light green, lustrous on both sides, 1.0-3.0 dm long, 2.0-4.0 mm wide, plicate to convolute, scabrous margined to base and below sheath.
CULMS	Cespitose, brownish at base, nodding or flexuous, 0.3-1.0 m tall, exceeding leaves, sides strongly 2-ribbed, angles obtuse smooth, except near summit, sparsely piloglandulose; transverse section with large triangular central cavity, vascular bundles not prominent.
SPIKES	Head moniliform, with lowermost spikes remote, rarely paniculate, 1.5-7.0 cm long, spikes 1-18, gynaecandrous, appressed-ascending, olivaceous or ferruginous, 0.7-2.5 cm long, 0.5-0.7 cm wide, obovoid, clavate-based; bracts scale-like and sometimes remote, the lowermost remote and setaceous, reaching middle of head.
SCALES	Pistillate scales stramineous or fulvous, midrib green, trinervate; covering perigynium, ovate-lanceolate, acute or acuminate. Staminate scales paler and smaller, narrowly obovate, acuminate.
PERIGYNIA	Dull-green or brownish, 4.0-5.0 mm long, 1.7-2.7 mm broad, ovate, concave-convex, nerveless or short-nerved ventrally, distinctly nerved dorsally, broadly winged to substipitate base; beak 1.0 mm long, with serrulate margins, emarginate.
ACHENE	Light-brown, obovoid, substipitate, lenticular, articulate; style deciduous, flexuous; stigmas 2, reddish-brown, 2.0 mm long.
DISTRIBUTION	Boreal, transcontinental North America.
HABITAT	Hemerophilic species of dry sites in mountain maple thickets, and along logging roads through disturbed forests.
FORAGE VALUE	Good seed source for small birds.

34. CAREX PRATICOLA Rydb., Mem. N.Y. Bot. Gard. 1:84. 1900.

ROOTSTOCKS	Rhizomes short, not freely stoloniferous, blackish, fibrillose.
SHEATHS	Basal sheaths fulvous; leaf sheaths tight; inner band hyaline, with ribbons in centre, concave, short-prolonged; ligule as long as broad.
LEAVES	Weakly ascending or recurved, light-green to stramineous, 2-3 dm long, 1.5-3.5 mm wide, plicate, contracted to acicular tip.
CULMS	Cespitose, phyllopodic, flexuous, 2.0-7.0 dm tall, exceeding leaves, very slender, sides strongly 2-ribbed, angles obtuse, smooth except near summit, transverse section with large central cavity and obscure vascular bundles.
SPIKES	Head flexuous, moniliform, 2.0-6.0 cm long; spikes 1-7, gynaecandrous, 0.5-1.2 cm long, elliptic, lowermost bract setaceous, serrulate, 1.5-2.0 cm long, uppermost bracts reduced to scale-like.
SCALES	Pistillate scales silvery-hyaline, or fulvous with hyaline margins, midrib paler, slenderly trinervate, costa evanescent, blade shorter than perigynium.
PERIGYNIA	Silvery-green to ferruginous, 4.5-6.0 mm long, 1.5-2.0 mm broad, lance-ovate, scale-like, finely nerved dorsally, nerveless or obscurely nerved ventrally, margins winged to base, serrulate on upper 2/3; beak 1.0-1.2 mm long, emarginate.
ACHENE	Light brown, 1.0-2.0 mm long, obovoid, substipitate, lenticular, apiculate, style flexuous, 3.0-4.0 mm long, articulate; stigmas 2, reddish-brown, 2.0 mm long.
DISTRIBUTION	Generally alpine in western parts of central North America and Alaska, and boreal in northeastern North America and Southwest Greenland.
HABITAT	Balsam fir tuckamore on high hills east of Codroy Valley.
FORAGE VALUE	Insignificant because of its rarity.



Carex praticola

POLYTRICHOIDEAE Tuckerm., Enum. Caric. 8. 1843.

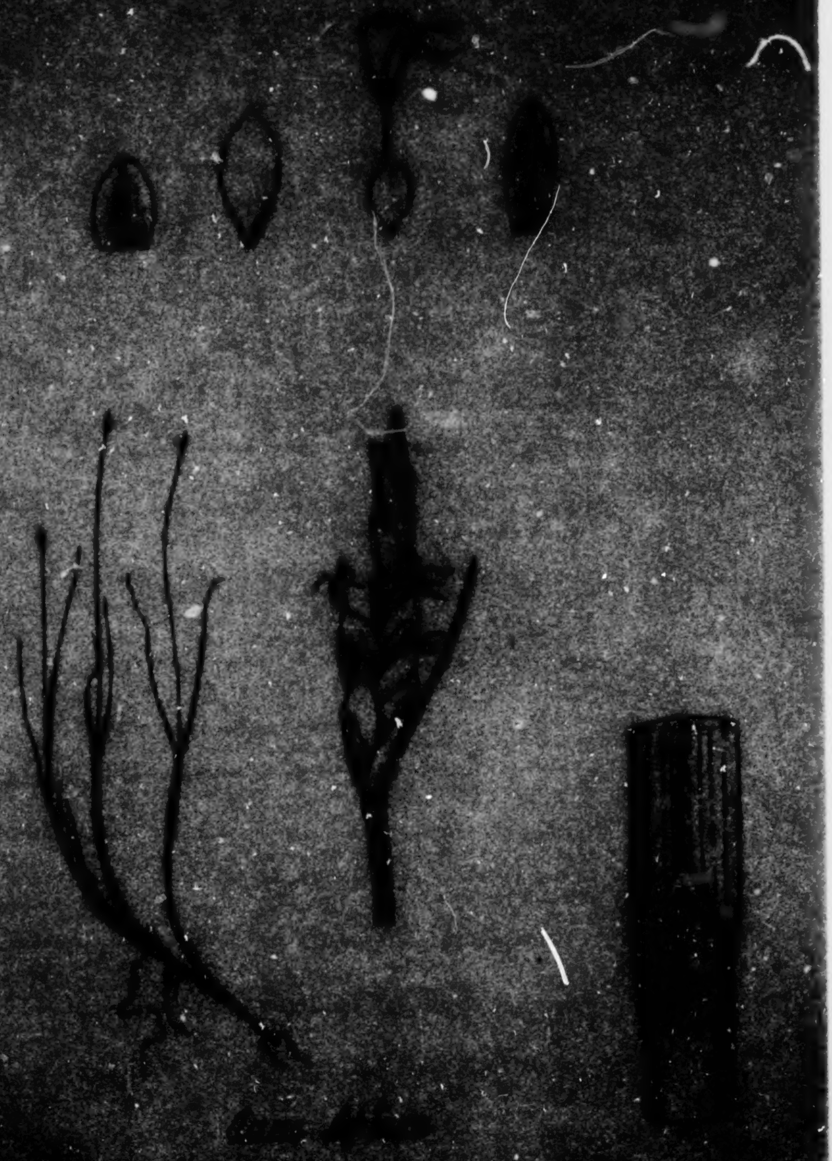
35. CAREX LEPTALEA Wahl., Sv. Vet.-Akad. Nya Handl. 24:139. 1803.

35a. var. *harperi* (Fern.) Wenth. & Grisc., ex Bartlett, Rhodora 13:131. 1911.

ROOTSTOCKS	Rhizomes stramineous, slender, freely branching; substoloniferous.
SHEATHS	Basal sheaths brown; inner band hyaline, summit retuse; ligule as long as broad.
LEAVES	Lax to ascending, soft, 1.0-5.0 dm long, filiform, margins serrulate on upper 1/3.
CULMS	Densely cespitose, aphyllopodic, 1.5-7.0 dm tall, capillary, sides obscurely ribbed, angles acute, smooth.
SPIKE	Solitary, androgynous, linear-oblong, 0.5-1.5 cm long, 1-10 flowered; bract scale-like, the serrulate awn 1/2 as long as spike.
SCALES	Pistillate scales stramineous to fulvous with hyaline margin, midrib paler, slenderly trinervate, costa slightly excurrent; shorter than perigynium, ovate, obtuse, caducous. Staminate scales connate.
PERIGYNIA	Imbricate, alternate, yellowish to stramineous, 2.5-4.0 mm long, ellipsoid, turgid, nerved, substipitate and spongy at base; obtuse and beakless at summit, orifice emarginate.
ACHENE	Loosely enveloped by perigynium, 1.2-1.5 mm long, ovoid, trigonous, substipitate, apiculate; style articulate, longer than achene; stigmas 3, reddish-brown.

35a var. *harperi*. Perigynia strongly overlapping,scales white.

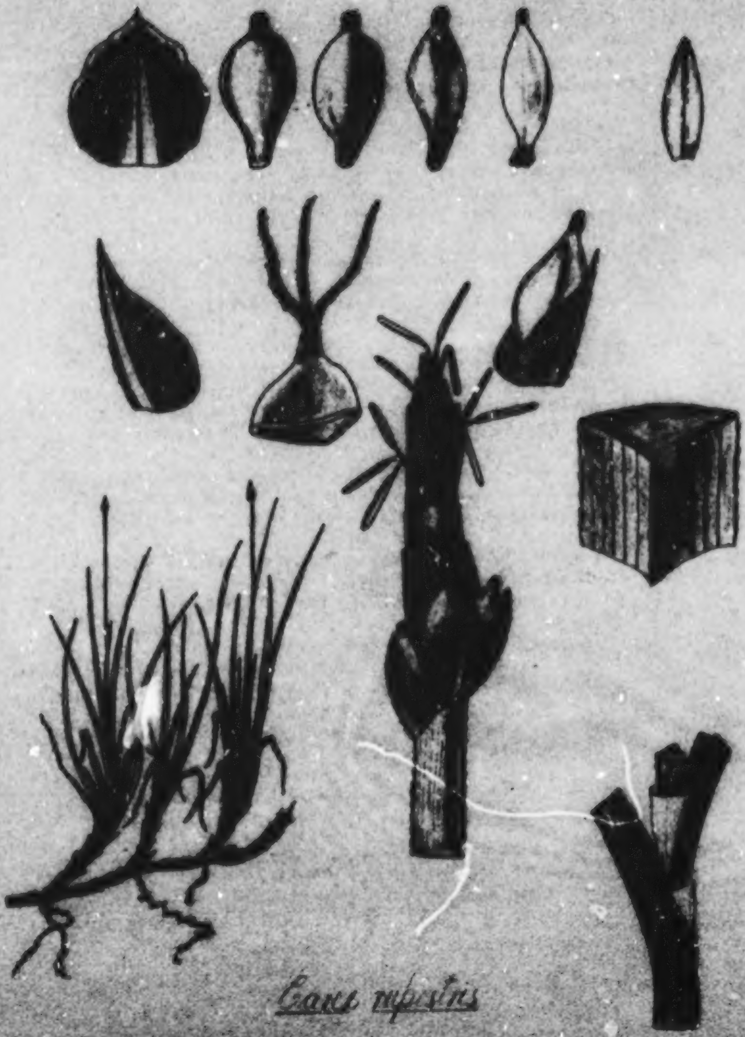
DISTRIBUTION	Temperate-boreal, transcontinental North America.
HABITAT	Most commonly found in black spruce fen forest and occasionally in minerotrophic fens.
FORAGE VALUE	Insignificant.



RUPESTRES Tuckerm., Enum. Caric. 8. 1843.

36. CAREX RUPESTRIS All., Fl. Pedem. 2:246. 1785.

ROOTSTOCKS	Rhizomes sympodial, cordlike, creeping, dark brown.
SHEATHS	Loose, overlapping each other, summit prolonged, truncate.
LEAVES	Densely tufted, ascending or recurved, coiled, 8.0-15.0 cm long, 1.0-3.0 mm wide, flat to plicate, margins scabrous to base.
CULMS	Thick, stiffly erect, 8.0-15.0 cm tall, usually exceeding leaves, sides 4-5 ribbed, 2 sides concave and 1 convex, angles sharp, scabrous, transverse section with very small round central cavity.
SPIKES	Solitary, androgynous, 0.6-2.3 cm long, linear-cylindric, bractless; pistillate flowers 1-4, approximate or scattered.
SCALES	Pistillate scales purple or castaneous with narrow hyaline margin, midrib broad at base, paler, trinervate, the costa prolonged and serrulate dorsally, shorter but broader than perigynium, obovate, obtuse or rounded at apex. Staminate scales paler and smaller, ovate, acuminate.
PERIGYNIA	Stramineous, fulvous or olivaceous, 3.00 mm long, elliptic-obovoid, substipitate, lateral angles elevated, obscurely short-nerved dorsally, trigonous; beak short, terete.
ACHENE	Filling perigynium, olivaceous or brownish, trigonous articulate; style deciduous, exposed to base, dark brown, 0.25-0.5 mm long; stigmas 3, reddish brown, 2.0-3.0 mm long.
DISTRIBUTION	Circumpolar arctic-boreal, disjunct in alpine regions of temperate zones.
HABITAT	Restricted to exposed calcareous and alpine heaths and slope fens in western Newfoundland.
FORAGE VALUE	A good seed source for ptarmigan and other mountain birds.
CHROMOSOME NUMBER	2n = 50, 52.



Carex rupestris

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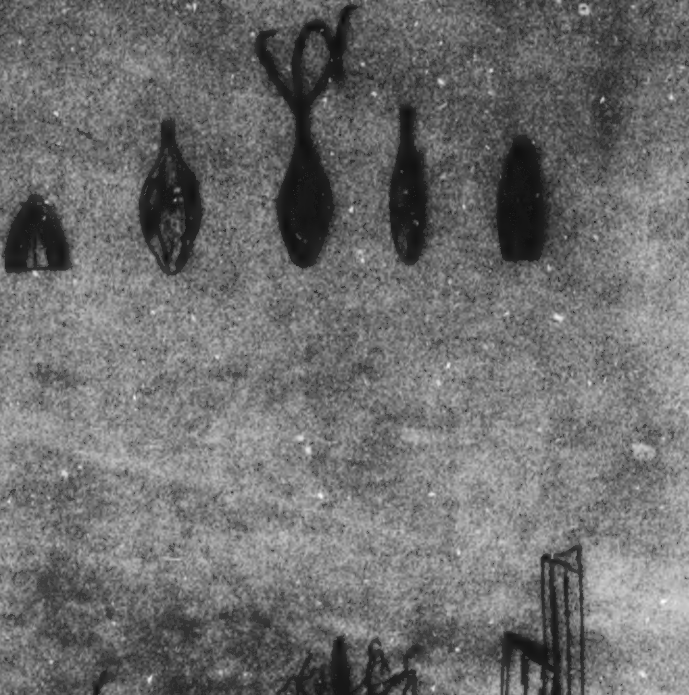
37. CAREX GLACIALIS var. terrae-novae (Fern.) Boivin, Nat. Can. 75:203. 1948.

ROOTSTOCKS	Rhizomes very short, roots dense.
SHEATHS	Basal sheaths dull, fulvous, dead sheaths numerous and persistent; sheaths of fertile culm connate, loose, inner band hyaline, summit concave; ligule as long as broad.
LEAVES	From dense tufts, very crowded, persistent, curving 2.0-5.0 cm long, 0.5-1.5 mm wide, plicate or filiform, margins usually serrulate, keel serrulate dorsally near summit.
CULMS	Erect, rigid, 0.1-1.2 dm tall, usually exceeding leaves, sides finely ribbed, angles obtuse and smooth, transverse section with small round central cavity.
SPIKES	Head 0.4-1.0 cm long, terminal spike staminate, 2.0-5.0 mm long, slenderly linear-cylindric; lateral spikes 1-3; pistillate, appressed-ascending, 2.0-6.0 mm long, oblong-ellipsoid, sessile; lowermost bract spathiform, scale-like, short awn barely exceeding spike, upper bracts inconspicuous.
SCALES	Pistillate scales purple to blackish, with hyaline margins, midrib evanescent, costa not reaching to summit; shorter than perigynium, broadly ovate, obtuse, caducous.
PERIGYNIA	Brown and suffused with purple, or blackish-puncticulate, 2.0-2.5 mm long, ellipsoid, biconvex, obscurely short-nerved, substipitate and spongy at base; beak 0.3 mm long, hyaline, terete.
ACHENE	Tightly enveloped by perigynium, dark-brown, puncticulate, ellipsoid, biconvex, truncate at base; style persistent.
DISTRIBUTION	Boreal, endemic to western Newfoundland and Lake Mistassini, Quebec.
HABITAT	Restricted to calcareous coastal barrens and islands.
FORAGE VALUE	High in nutritional value, especially for sheep. Intensive grazing causes plants to form a dense turf over shallow soil.



[illegible] glaciatum [illegible]

SCIRPINAE Tuckerm., Enum. Caric. 8. 1843.

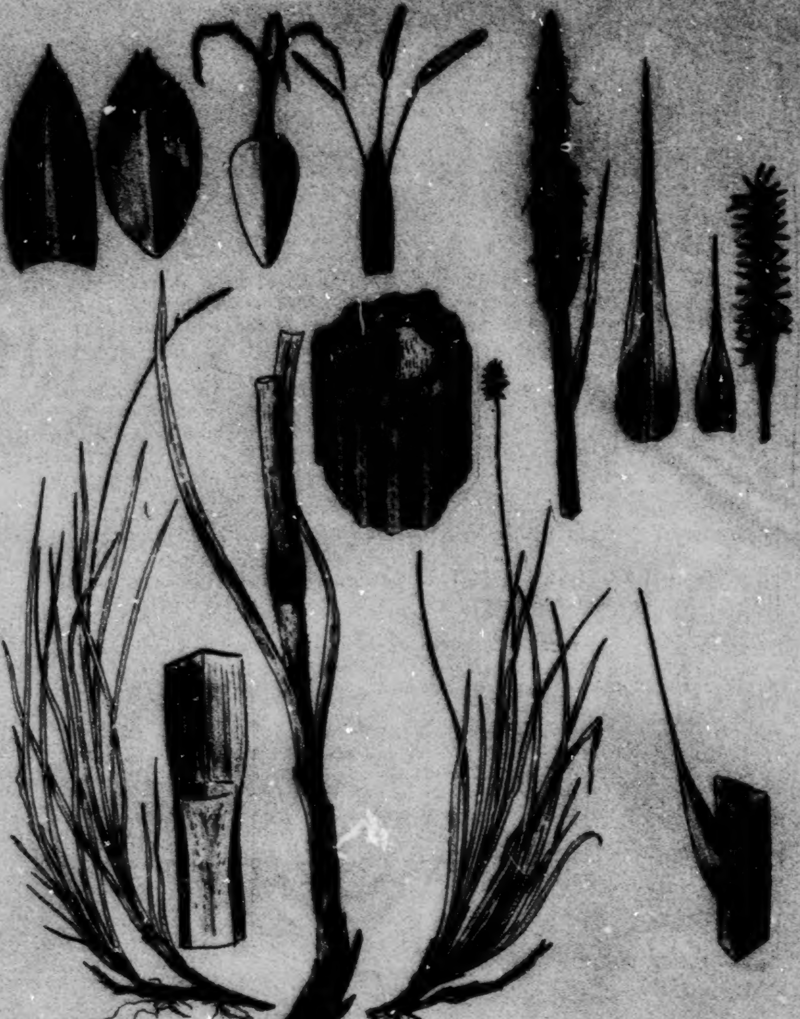
38. CAREX SCIRPOIDEA Michx., Fl. Bor. Am. 2:171. 1803. (Not Schk. 1805.)

38a. var. *scirpiformis* (Mack.) O'Neil & Duman, Rhodora 43:413. 1941.

ROOTSTOCKS	Rhizomes sympodial, segments between shoots short.
SHEATHS	Basal sheaths purplish, upper sheaths slightly ladder-fibrillose, the hyaline inner band puberulent near concave summit.
LEAVES	From loosely cespitose creeping tufts, ascending or recurved, up to 3.0 dm long, 1.0-2.5 mm wide, lustrous on both sides, plicate to conduplicate, margin scabrous on upper 1/2.
CULMS	Solitary or few, 1.0-4.0 dm tall, equaling or considerably exceeding leaves, ribs prominent and obscurely serrulate, mid-transverse section somewhat pentagonal with large round central cavity and prominent vascular bundles, upper transverse section and central cavity triangular, the angles serrulate.
SPIKES	Dioecious, solitary, the pistillate linear-cylindric 1.0-4.0 cm long, staminate 1.0-2.0 cm long, slender-clavate; bract remote from spike, lance-attenuate, somewhat setaceous above middle with serrulate margins, scale-like below, sheathless.
SCALES	Pistillate scales purplish-brown, midrib prominent, trinervate the costa prolonged; equaling or exceeding perigynium, oblong-ovate, obtuse or acute, sparsely pubescent dorsally near apex. Staminate scales much smaller lanceolate, obtuse or acuminate.
PERIGYNIA	Appressed-ascending, dark-brown and pubescent above, lighter and sparsely pubescent below, 2.0-3.0 mm long, ovoid, trigonous; beak, minute (0.2 mm long), terete, margins elevated ventrally.
ACHENE	Light-brown or fulvous 1.0-1.5 mm long, oblanceolate; trigonous; style 0.25 mm long, reddish-brown; stigmas 3, reddish-brown, thickish.

38a. *C. scirpoidea* in our region is represented by var. *scirpiformis*.

DISTRIBUTION	Arctic-boreal, transcontinental North America, amphiatlantic and amphipacific.
HABITAT	Exposed rocky cliffs and headlands, subalpine and alpine slope fens and heaths, shallow peaty soils on serpentine and plateau barrens.
FORAGE VALUE	Good seed source for ptarmigan and other mountain birds; high nutritional value for caribou, moose, etc.
CHROMOSOME NUMBER	$2n = 62, 64, 68$.

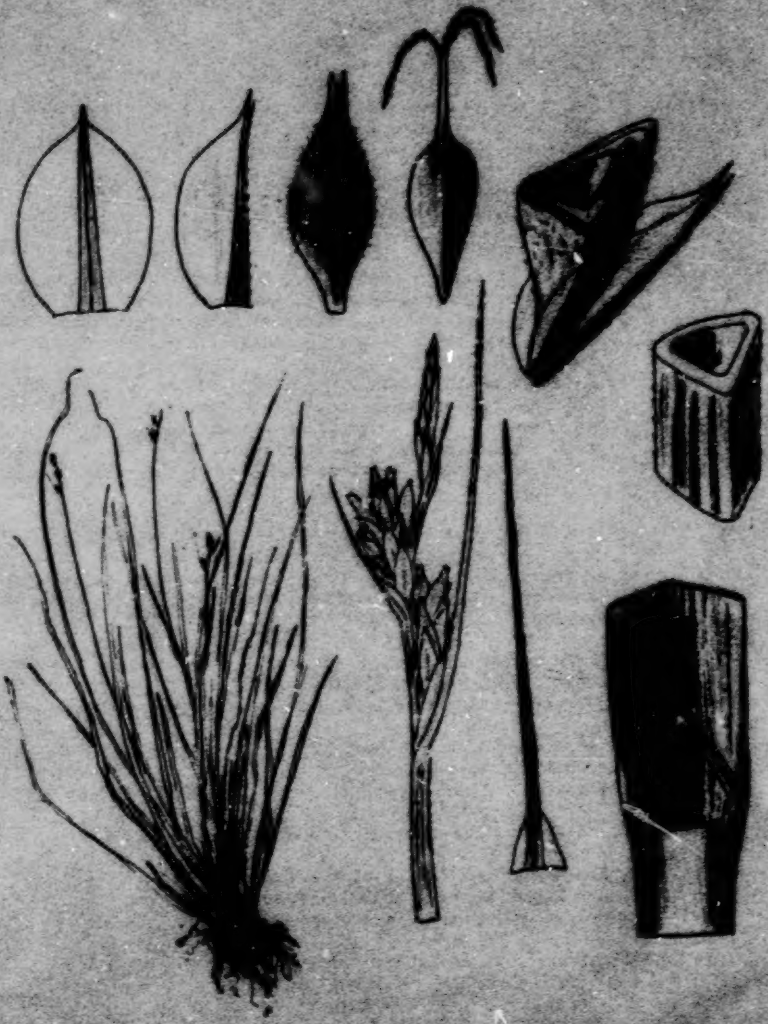


Carex scirpoidea

MONTANAE Fries. Fl. Scan. 188. 1935.

39. CAREX NOVAE-ANGLIAE Schw., Ann. Lyc. N.Y. 1:67. 1824.

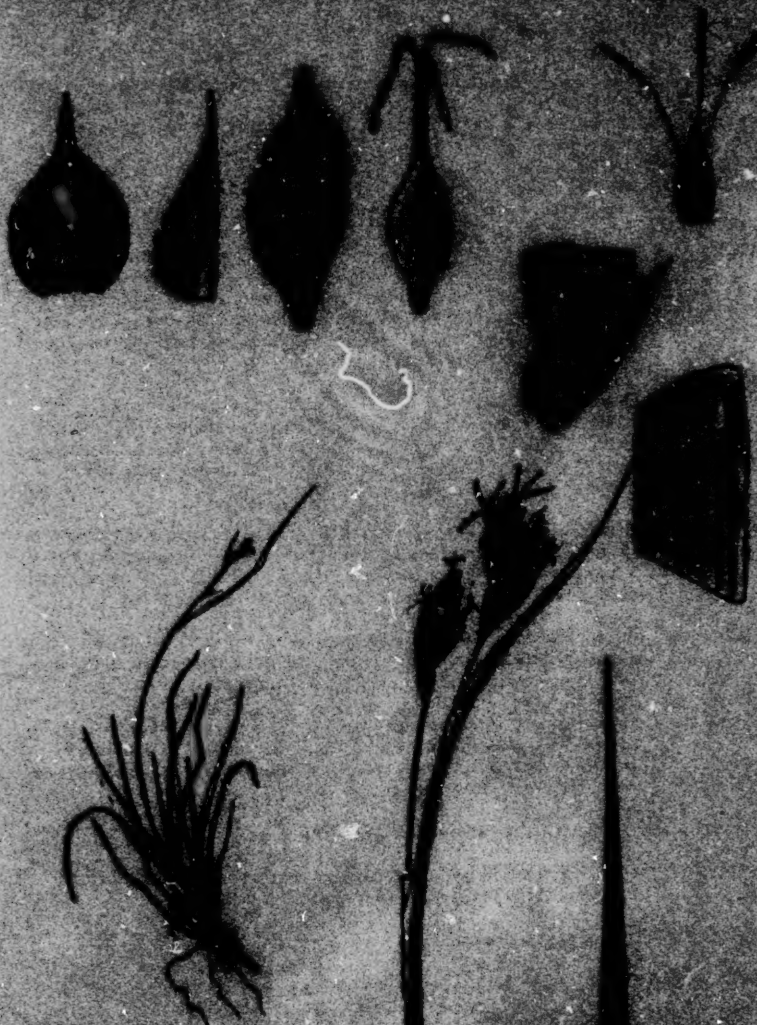
ROOTSTOCKS	Freely stoloniferous.
SHEATHS	Tight, summit of hyaline sheath truncate; ligule as long as broad.
LEAVES	Loosely cespitose, pale-green, 1.0-4.0 dm long, 1.0-2.0 mm wide, plicate to flat, margins scabrous to sheath.
CULMS	Weakly-ascending, 1.0-4.0 dm tall, much shorter to equaling leaves, filifrom, sides 2-3-ribbed, angles obtuse and serrulate, transverse section with large triangular central cavity.
SPIKES	Head interruptedly linear-cylindric, 1.5-6.0 cm long, with weak axis; staminate spike short-peduncled, 0.5-0.1 cm long; pistillate spikes 2-3, remote, the lowermost short peduncled, 3-10 flowered, ellipsoid to subglobose; lowermost bract barely short-sheathed, setaceous, exceeding inflorescence, serrulate-margined.
SCALES	Pistillate scales hyaline, or pale-brown, midrib darker, green, trinervate the costa serrulate and mucronate tipped ventrally; equaling perigynium, orbicular with abrupt cuspidate apex.
PERIGYNIA	Brown, minutely pubescent, 2.2-2.7 mm long, obovoid, substipitate, trigonous, margins elevated ventrally; beak 1/4-1/5 as long as body, emarginate.
ACHENE	Loosely enveloped by perigynium, pale brown, obovate, substipitate, trigonous, articulate; style deciduous, plae, 1.0 mm long; stigmas 3, reddish-brown, 1.5 mm long.
DISTRIBUTION	Boreal, eastern North America.
HABITAT	Rare, in open balsam fir tuckamore in coastal plains of southern and southwestern Newfoundland.
FORAGE VALUE	Insignificant
CHROMOSOME NUMBER	2n = 30.



Carex novae-angliae

40. **CAREX DEFLEXA** Hornem., Dansk. Oecon. Pl. Ed. 3. 1:938. 1821.

ROOTSTOCKS	Stolons horizontal or ascending.
SHEATHS	Loose, red at base, decompose easily; inner band ladder fibrillose dorsally, summit hyaline, prolonged and truncate; ligule broader than long.
LEAVES	Loosely ascending or spreading, light-green, 5.0-11.0 cm long, 1.0-1.5 mm wide, plicate to flat, scabrous near apex.
CULMS	Loosely or densely cespitose, flexuous or curved, equaling or shorter than leaves or crowded among leaf bases, sides 7-ribbed, angles obtuse, scabrous near summit, transverse section with large triangular central cavity.
SPIKES	Staminate spike solitary, terminal, 2.0-5.0 cm long, often overtopped or hidden by pistillate spike; pistillate spikes 2-4, remote, green or green and reddish brown, 0.5-2.0 cm long, pedunculate by a leafy bract; 2-8 flowered; bract 0.4-1.0 dm long, often overtopping head, or scale-like, margins serrulate.
SCALES	Pistillate scales green or hyaline, midrib, darker, prolonged to 1.0 mm, cuspidate tip with serrulate margins, costa serrulate dorsally; covering body of perigynium, ovate, acuminate. Staminate scales 1.0 mm long, ovate lanceolate, acuminate.
PERIGYNIA	Green becoming brown, pubescent, 2.0-3.0 mm long, plump obovoid or pyriform, stipitate, margins elevated dorsally, trigonous; beak 0.5-0.75 mm long, terete.
ACHENE	Loosely enveloped by perigynium, pale-green, obovoid, substipitate, trigonous; style thickish, 1.0 mm long; stigmas 3, light-brown, 1.5 mm long.
DISTRIBUTION	Boreal, transcontinental North America.
HABITAT	Exposed situations in alpine and subalpine heaths, dry ridges of coastal and plateau barrens and occasionally on dry hummocks of subalpine slope fens.
FORAGE VALUE	Important, though not abundant, winter forage for caribou, moose and ptarmigan in the open range.
CHROMOSOME NUMBER	2n = 20-24, 36.



Carex deflexa

41. CAREX UMBELLATA Schk., in Caric. N. Am. Fl. 18:1-475. 1935. (Not Schk. 1805.)

ROOTSTOCKS Rhizomes sympodial, stolons short, cespitone and forming mats.

SHEATHS Loose, the summit hyaline and concave; ligule broader than long.

LEAVES Ascending or curved, 0.5-1.5 dm long, or sometimes exceeding culm, flat to conduplicate, scabrous margined.

CULMS Densely cespitose, culms dioecious or monecious, (basal inflorescence sometimes present), 5.0-20.0 cm tall, or sometimes crowded among leaf bases, sides prominently 2-ribbed, angles obtuse and scabrous, transverse section with small triangular central cavity and prominent vascular bundles.

SPIKES Staminate spikes terminal or with pistillate spike approximate to it, 0.8-1.2 mm long, peduncled ellipsoid-ovoid; pistillate spikes 0.5-1.0 cm long, mostly peduncled, ovate-oblong; lowermost bracts 4.0-12.0 cm long, overtopping terminal spike.

SCALES Pistillate scales green with brownish twigs, midnerve green, trinervate, costa serrulate and divergent dorsally; covering body of perigynium, ovate, acuminate. Staminate scale larger and darker, lance-ovate, acuminate.

PERIGYNIA Green becoming brown, sparsely pubescent, 2.0-3.0 mm long, ellipsoid-ovoid, substipitate, margins elevated ventrally, trigonous; beak 0.5-1.0 mm long, terete.

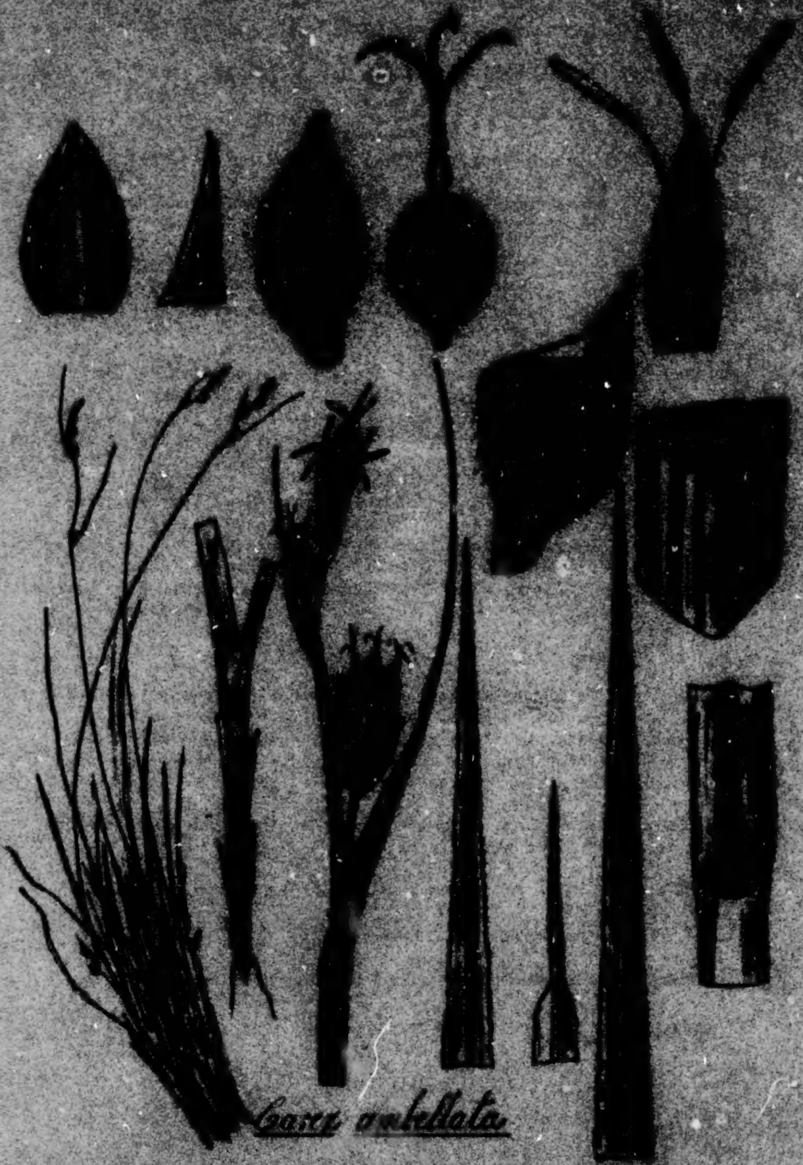
ACHENE Loosely enveloped by perigynium, dark-brown, orbicular, trigonous, substipitate, articulate; style light-brown, deciduous, 1.0 mm long, bulbous at base; stigmas 3, reddish brown, 1.5 mm long.

DISTRIBUTION Boreal, transcontinental North America.

HABITAT Rare, dry soils in clearings of balsam fir tuckamore and gravelly banks of rivers and ponds.

FORAGE VALUE Insignificant.

CHROMOSOME NUMBER 2n = 30.

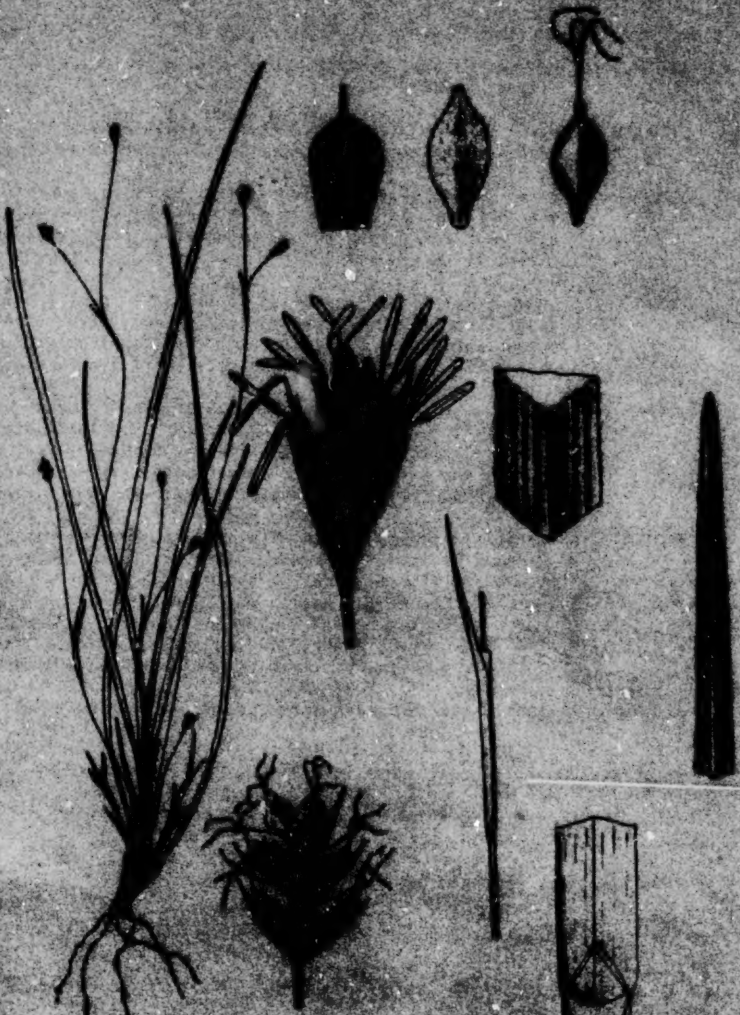


Carex umbellata

DIGITATAE Fries. Fl. Scan. 187. 1835.

42. CAREX PEDUNCULATA Muhl., in Willd., Sp. Pl. 4:222. 1805. (Not Pritchard.)

ROOTSTOCKS	Rhizomes short; stolons dense, forming tufts.
SHEATHS	Basal sheaths vinous, lustrous; inner band purple, lustrous.
LEAVES	Mostly basal, overwintering, dark-green, diffuse-ascending to curved, 0.5-2.5 dm long, 2.0-5.0 mm wide, flat below becoming plicate to convolute near summit, margins serrulate on upper 1/3.
CULMS	Very weak, flexuous, loosely ascending, 0.5-3.0 dm tall, mostly shorter than leaves, capillary, sides obscurely 3-ribbed, angles smooth and obtuse, serrulate near summit, transverse section solid, vascular bundles inconspicuous.
SPIKES	Terminal spike usually androgynous or less frequently staminate 0.6-1.0 cm long, elliptic; lateral spikes 2-4, pistillate, remote, often basal, erect or spreading, 0.7-1.0 mm long, elliptic, 3-8 flowered, peduncles capillary, elongate, flexuous, angles obscurely serrulate; bracts long spathiform-sheathing, short serrulate-awned, or the basal bracts foliaceous, terminal bract, scale-like.
SCALES	Pistillate scales, green to purple, frequently with hyaline margins, midrib pale, slenderly trinervate, costa excurrent to serrulate cusp or awn; exceeding perigynium, oblong-ovate, blade truncate or obtuse. Staminate, scales lance-ovate, acute.
PERIGYNIA	Glabrous or slightly pubescent above; obovoid, spongy at base; beak minute.
ACHENE	Filling perigynium, brown; style minute; stigmas 3.
DISTRIBUTION	Disjunct temperate-boreal.
HABITAT	Alder swamps and Rubus-balsam fir forests.
FORAGE VALUE	Insignificant.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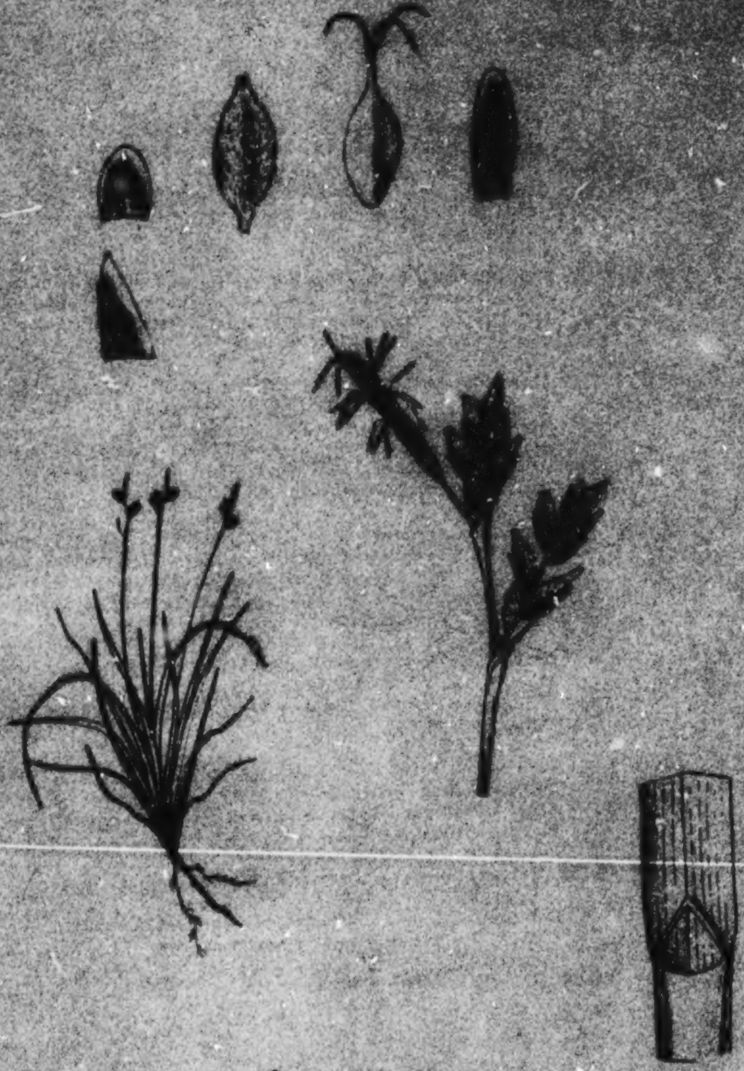
43. CAREX CONCINNA R. Br., in App. Franklin's Journ. 763. 1823.

ROOTSTOCKS	Rhizomes short; stolons extended to a prolonged, vinous, caudex.
SHEATHS	Basal sheaths vinous, lustrous; leaf sheaths tight, inner band hyaline, concave; ligule as broad as long.
LEAVES	Ascending or recurved, dark-green, lustrous, soft, mostly basal, thick, 5.0-9.0 cm long, 1.7-2.5 mm wide, flat to plicate, contracted to short acicular tip, margins serrulate on upper 1/2.
CULMS	Densely cespitose, ascending or flexuous, phyllopodic, 1.0-2.0 dm tall, much exceeding leaves, filiform, angles obtuse, smooth except near summit, sides with prominent median rib transverse section with small central cavity.
SPIKES	Terminal spike staminate, 3.0-5.0 mm long, linear cylindric, peduncled; lateral spikes 2-3, pistillate, 3.0-6.0 mm long, subglobose, loosely 6-10 flowered, usually sessile; lowermost bract spathiform-sheathing, short-awned, uppermost sheathing, more or less awnless.
SCALES	Pistillate scales vinous with hyaline margins, midrib green, slenderly trinervate, costa evanescent near summit, serrulate dorsally, blade broadly ovate, obtuse. Staminate scales larger, oblong-ovate, obtuse.
PERIGYNIA	Dull light-brown, hairy, 2.0-3.0 mm long, slenderly-ovoid, trigonous, substipitate; beak minute, emarginate.
ACHENE	Tightly filling perigynium, brown; style minute; stigmas 3, 1.50-2.0 mm long.
DISTRIBUTION	Boreal, transcontinental North America.
HABITAT	Rare, alder swamps and Rubus-balsam fir forests in coastal plains of western Newfoundland.
FORAGE VALUE	Insignificant.

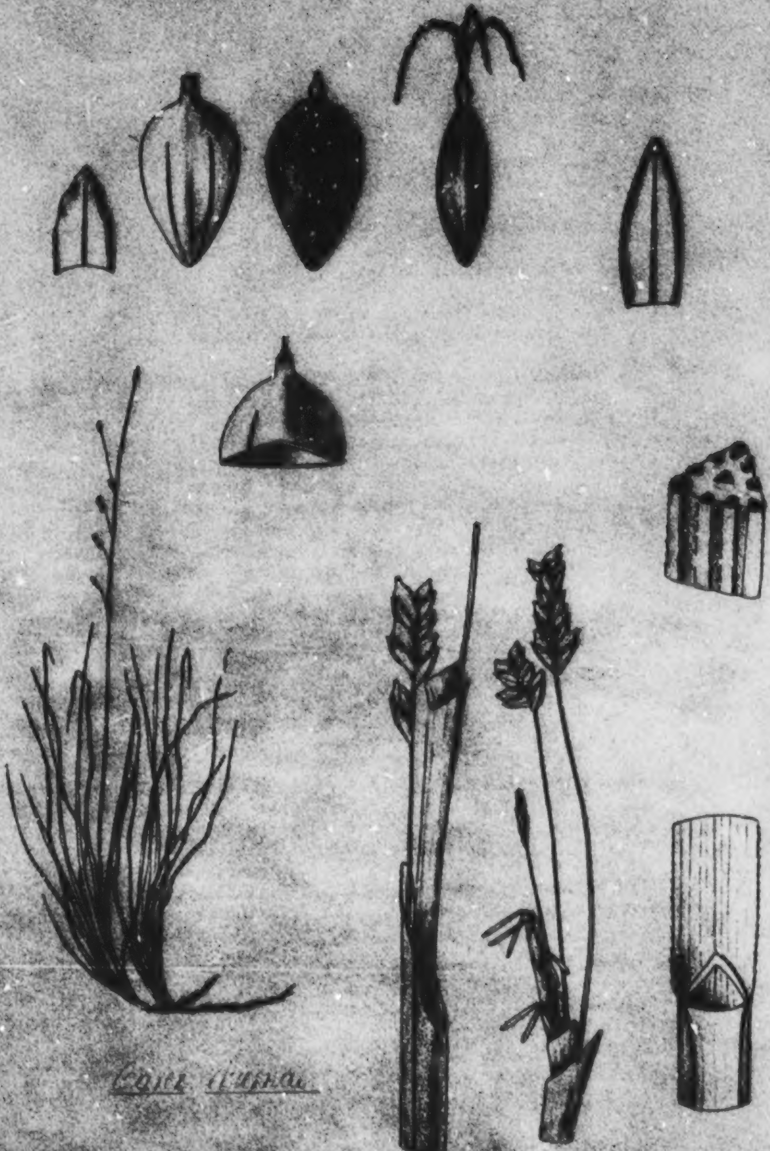


Carex concinna

ALBAE A. & G. Syn. Mitteleur. Fl. 2(2):156. 1902.

44. CAREX EBURNEA Boott, in Hooker, Fl. Bor. Am. 2:226. 1839.

ROOTSTOCKS	Rhizomes sympodial; stoloniferous.
SHEATHS	Shoots pale-brown at base, sheath hyaline with pale green nerves; ligule as long as broad.
LEAVES	From 1-several tufts, wiry and curving, 1.0-4.0 dm tall, 0.5 mm wide, involute-filiform, scabrous-margined to sheath.
CULMS	Phyllopodic, capillary, wiry, 0.7-4.0 dm tall, sides prominently 2-ribbed, angles acuminate, serrulate on upper 1/2, transverse section with small central cavity and prominent vascular bundles.
SPIKES	Staminate spike, with corymbiform inflorescence, 4.0-8.0 mm long, sessile or nearly so, overtopped by 2 or more pistillate spikes; pistillate spikes 2-4, lanceolate to ellipsoid, 2.0-6.0 mm long, on slender erect or curving peduncles; bracts sheathing, tubular and truncate, bladeless, prominently brown-nerved, summit hyaline.
SCALES	Pistillate, scales whitish or pale-brown, midrib green, slender, obscurely trinervate; 1/2 as long as perigynium, oblong-ovate, obtuse or acuminate, caducous. Staminate scales hyaline or brown tinged, lance ovate, midrib reaching to below summit.
PERIGYNIA	Olivaceous to dark-brown, glabrous becoming lustrous, 1.5-2.0 mm long, very thin walled, obovate, trigonous, 1-nerved on dorsal planes; beak blackish, 0.25-0.5 mm long, terete.
ACHENE	Perigynium skin-like on achene, blackish, lustrous, body the same size and shape as perigynium, puncticulate; style deciduous, bulbous, 0.5 mm long; stigmas 3, reddish-brown, 1.0 mm long.
DISTRIBUTION	Temperate-boreal, transcontinental North America.
HABITAT	Calcareous ledges of subalpine, serpentine and coastal heaths of western Newfoundland.
FORAGE VALUE	Insignificant.

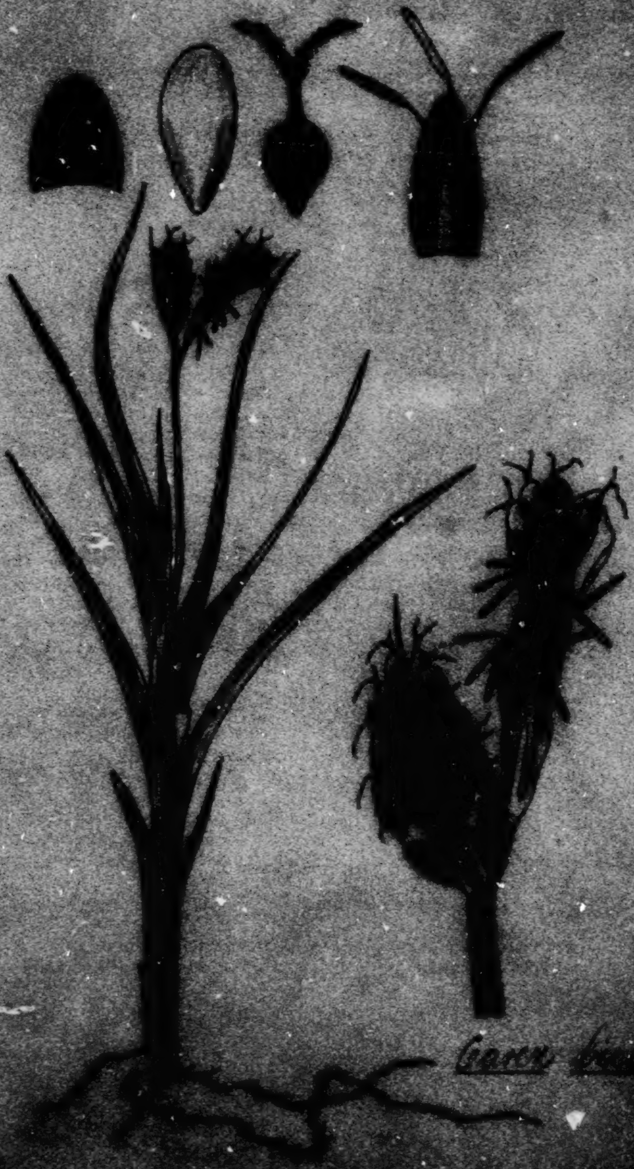


Carex [illegible]

BICOLORES Tuckerm., Enum. Caric. 12. 1843.

45. CAREX BICOLOR All., Fl. Pedem. 2:267. 1785.

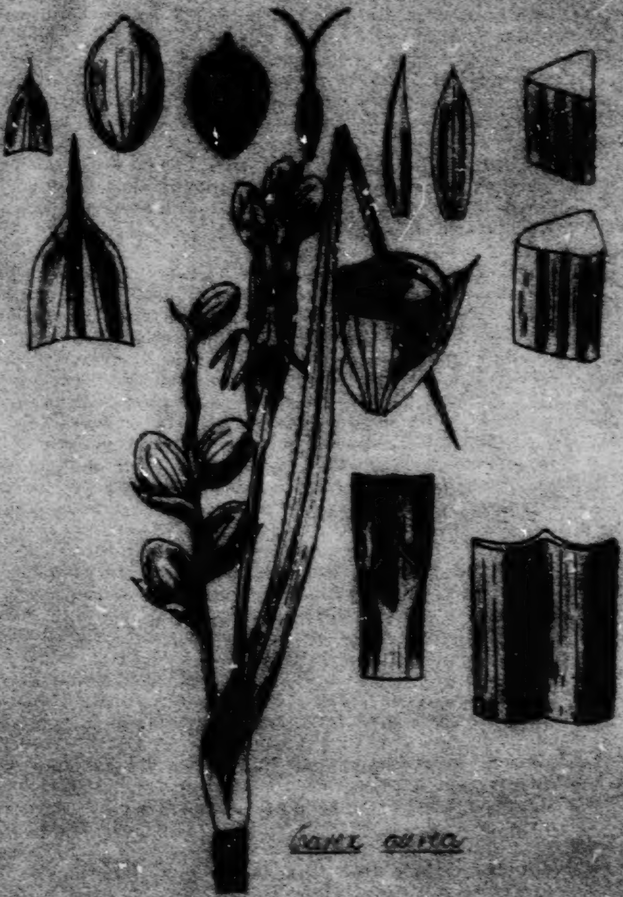
ROOTSTOCKS	Roots substoloniferous, the shoots loosely cespitose and forming pale mats.
SHEATHS	Usually concealed by leaves; summit of hyaline band truncate; ligule broader than long.
LEAVES	Ascending, spreading, often recurved, 0.1-1.0 dm long, 1.0-2.5 mm wide, flat or convolute, long attenuate, scabrous-margined on upper 1/2.
CULMS	Aphyllopodic, flexuous or arching, subcapillary, 1.0-15.0 cm long, about equaling leaves.
SPIKES	Crowded, or the lower distant, in a fastigiate glomerule, 1-5, the terminal androgynous, the lower pistillate, 0.5-1.0 cm long, thick-ellipsoid; bracts setaceous, auricled at base, rarely overtopping spikes, bract subtending terminal spike,scale-like.
SCALES	Pistillate scales purplish-black, midrib pale green; shorter than perigynium, oblong-ovate, obtuse. Staminate scales larger, ovate-lanceolate, midrib conspicuous and lighter, reaching to near summit.
PERIGYNIA	White-granulose, 1.7-3.0 mm long, obovoid-ellipsoid, biconvex; beakless.
ACHENE	Loosely enveloped by perigynium, dark brown to blackish, 0.5-1.5 mm long, obovoid to suborbicular, biconvex, substipitate, style 1.0 mm long; stigmas 3, reddish-brown, 1.5-2.0 mm long.
DISTRIBUTION	Circumpolar arctic and alpine regions in mid-latitudes.
HABITAT	Coastal calcareous barrens along northwest shore of the Great Northern Peninsula.
FORAGE VALUE	Highly nutritious but insignificant because of its rarity.



Carex [illegible]

46. CAREX AUREA Nutt., Gen. N. Am. 2:205. 1818.

ROOTSTOCKS	Rhizomes sympodial, creeping; stoloniferous; roots yellow with distant marcescent leaflets.
SHEATHS	Sheathing connate; summit of hyaline band V-shaped; ligule longer than broad.
LEAVES	Ascending stramineous, 0.3-4.0 dm long, 1.0-4.0 mm wide, flat to conduplicate.
CULMS	Sterile leafy culms frequent; fertile culms phyllopodic, 0.3-5.5 dm tall, sides 3-ribbed, angles obtuse, serrulate on upper 1/2, transverse section solid with obscure vascular bundles.
SPIKES	Loosely fastigiate glomerules, terminal spike gynaecandrous or frequently wholly staminate, 1.0-1.5 cm long, linear-cylindric, sessile, subtended by scale-like bract; pistillate spikes 3-5, the lower near base on long peduncle, the upper progressively closer together on gradually shorter peduncles, 0.5-1.5 cm long, linear-cylindric; bracts 2-3, foliaceous, overtopping culm, sheathing at base.
SCALES	Pistillate scales brown, midrib green, trinervate, the costa cuspidate and serrulate dorsally and on margins of cusp; 1/2 as long as perigynium, broadly ovate and apreading at maturity, abruptly acuminate. Staminate scales, lanceolate, longer, acuminate, costa slightly cuspidate, serrulate dorsally.
PERICYNIA	Loosely inserted in 2-3 rows, slightly appressed, at maturity orange and fleshy, when dried whitish-granular and several-nerved, 2.0-3.0 mm long, elliptic-ovoid, bi-convex, rounded at base and apex; beak minute, terete.
ACHENE	Closely enveloped by perigynium, dark brown, as long as perigynium, somewhat flattened at summit; lenticular, style minute, terete; stigmas 3, soon disarticulating.
DISTRIBUTION	Temperate-boreal, transcontinental North America.
HABITAT	Moist, often peaty, soils on calcareous coastal, alpine and serpentine heaths in western Newfoundland.
FORAGE VALUE	Insignificant.
CHROMOSOME NUMBER	2n = 50.



Carex curta

CRYPTOCARPAE Tuckerm., Enum. Caric. 11. 1843.

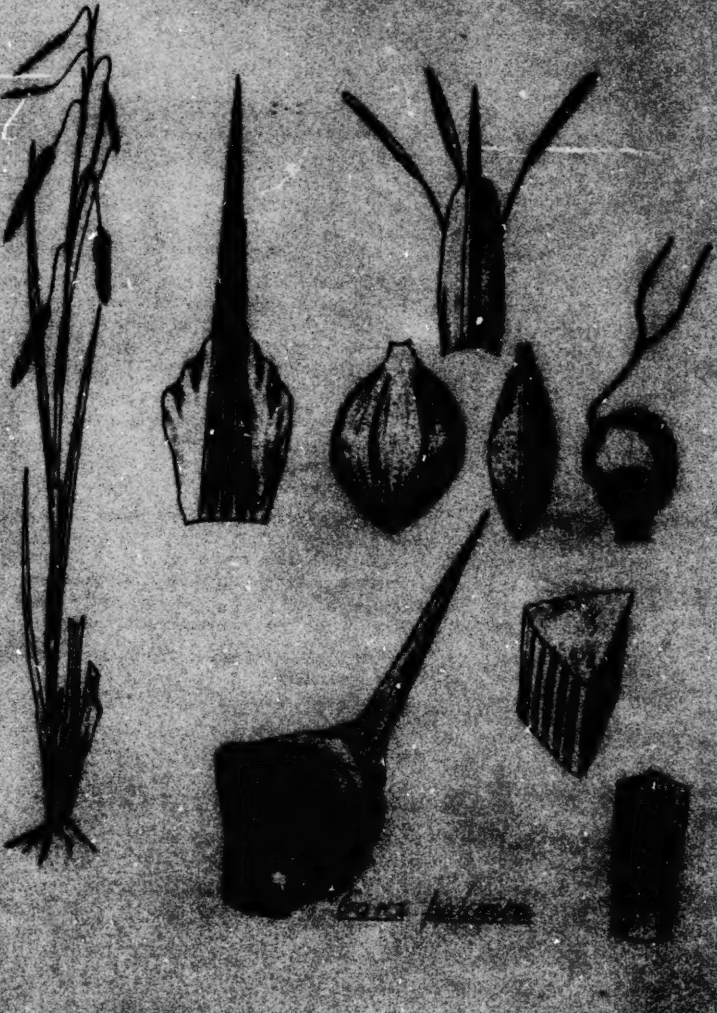
47. **CAREX PALEACEA** Wahl., Sv. Vet.-Akad. Nya Handl. 24:164. 1803.

47a. forma erectiuscula Fern., Rhodora 2:170. 1900.

ROOTSTOCKS	Rhizomes sympodial, cordlike, 4.0-6.0 mm thick; stolons white and smooth.
SHEATHS	Basal sheaths dark-brown; upper sheaths not ladder-fibrillose, summit of inner band hyaline, prolonged, concave; ligule as long as broad, 2.0-4.0 mm high, acuminate.
LEAVES	Ascending, 1.0-8.0 dm long, 1.0-12.0 mm wide, conduplicate, margins serrulate except near sheath; leaves on sterile culms elongate and overtopping inflorescence; leaves on fertile culms usually 1.0-2.0 dm long.
CULMS	Phyllopodic, relatively slender, 0.1-1.0 cm tall, sides 7-ribbed, angles obtuse-acuminate, smooth or minutely serrulate between spikes, transverse section more or less solid, vascular bundles evident but not prominent.
SPIKES	Drooping on peduncles 1.0-4.5 cm long, staminate spikes, 2-4, unequal lengths, the terminal 2.0-6.0 cm long, linear-cylindric; pistillate spikes 2-4, widely spreading, 2.0-5.0 cm long, 5.0-8.0 mm thick, stout linear-cylindric, often staminate at tip; lower bracts foliaceous and elongate, overtopping inflorescence, the upper gradually reduced to scale-like, sheathless or nearly so.
SCALES	Blade of pistillate scales stramineous to brown, 2.5-3.5 mm long, midrib green, prominently trinervate dorsally, aristate and longer than the blades, the margins serrulate above blade Blade of staminate scales narrower, oblong with rounded truncate apex, awn about 1/2 as long as blade.
PERIGYNIA	Fulvous, 2.5-3.0 mm long obovoid-ellipsoid, narrowly biconvex obtuse and spongy at base, margins elevated, finely 2-3 nerve or nerveless, obscurely puncticulate; beak 0.5 mm long, teret
ACHENE	Loosely enveloped by perigynium, round, invaginated one on margin near middle, broadly stipitate, articulate; style ligh brown, 2.0 mm long, bent at joint; stigmas 2, 2.0 mm long, slender.

47a. forma erectiuscula. Spikes ascending, 1.0-2.5 cm long.

DISTRIBUTION	Temperate-boreal, amphiatlantic.
HABITAT	Saltmarshes.
FORAGE VALUE	High forage value to birds for food, nesting and concealmen



48. **CAREX SALINA** Wahl., Sv. Vet.-Akad. Nya Handl. 24:164. 1803.

48a var. subspathacea Wormskj. Tuckerm., Enum. Caric. 12. 1843.

48b var. kattegatensis (Fries.) Almq., ex Knowlton, Rhodora 14:108. 1912.

48c var. pseudofilipendula Kukenth., in Engler, Pflanzenr. 4(20): 1909.

ROOTSTOCKS	Stoloniferous, the horizontal stolons prolonged, cored-like, scaly but leafless.
SHEATHS	Basal sheaths dark brown; inner band hyaline, the summit brown tinged and brown puncticulate, prolonged; ligule as long as broad, acuminated.
LEAVES	Ascending or recurved, 1.0-2.0 dm long, 2.0-5.0 mm wide, plicate to flat, becoming involute with age; leaves on sterile culms overtopping inflorescence, margins serrulate on upper 1/3.
CULMS	Cespitose, aphyllopodic with 4-6 somewhat distichous leaves, the lower leaves short and amplexicaul, 1.0-3.0 dm tall, slender, erect, sides, 3-ribbed, angles obtuse and sparsely serrulate near summit, transverse section with small central cavity.
SPIKES	Staminate spikes 1-3, erect, 1.0-4.0 cm long linear-cylindric, the terminal peduncled, the lateral subsessile; pistillate spikes 1-4, often staminate at tip, somewhat distant, erect, 0.75-4.5 cm long, the lowermost subsessile, the uppermost sessile or nearly so; bracts foliaceous sheathing the lowermost slightly exceeding inflorescence.
SCALES	The lowermost 1-3 scales distant or approximate on peduncle; pistillate scales purplish, midrib green, trinervate, costa prominent and long-awned on lowermost scales to short-awned on upper scales; awns with serrulate margins, exceeding perigynium, ovate-lanceolate, obtuse or acuminate, costa generally not prolonged, except on lowermost scales.
PERIGYNIA	Pale-green, 1.5-2.5 mm long, elliptic, plano-convex, margins prominently elevated, nerveless or obscurely nerved, substipitate, abruptly apiculate; beak 0.5 mm long, terete.
ACHENE	Pale-green, small and narrow, deeply invaginated, substipitate; style 1.5 mm long; stigmas 2, short and slender.

48a var. subspathacea. Culms 0.3-1.5 dm tall, slender, somewhat divergent; pistillate scales blackish; lowermost bract dilated and sheathing.

48b var. kattegatensis. Culms 3-8 dm tall, pistillate spikes 2-8 cm long, 4-10 mm thick; lowermost bract not dilated or sheathing.

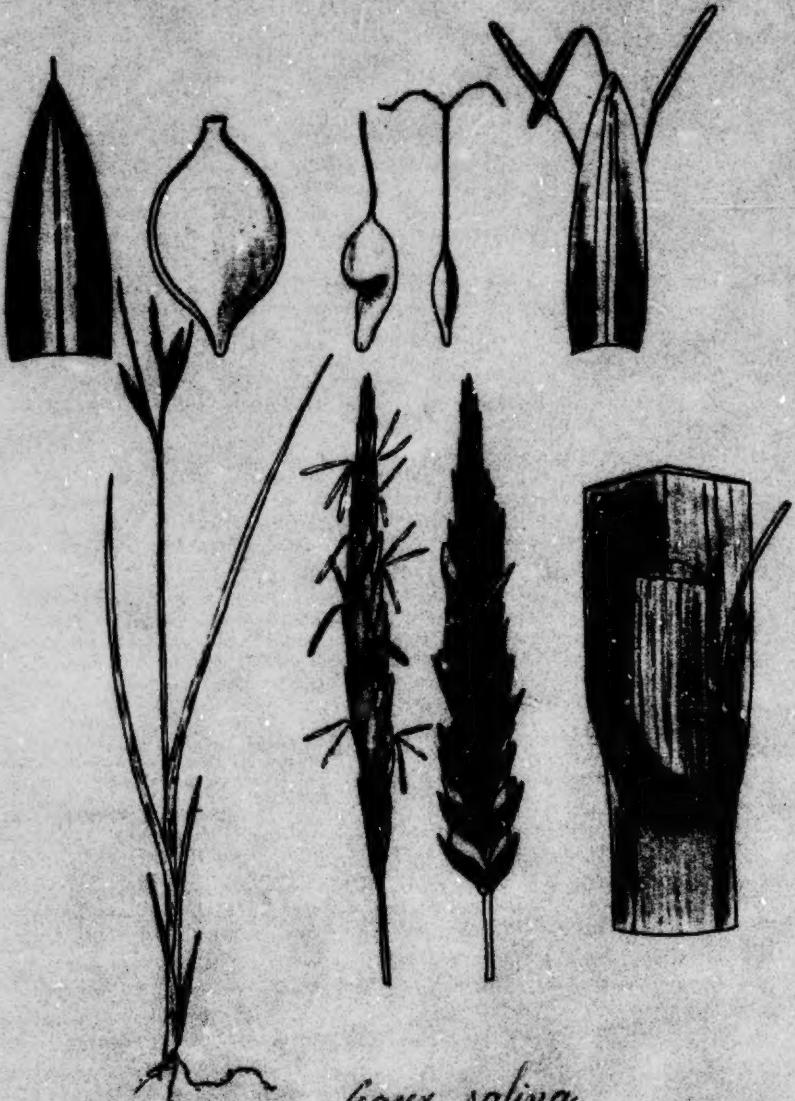
48c var. pseudofilipendula. Spikes long-peduncled, pendulous.

DISTRIBUTION Circumpolar arctic-boreal.

HABITAT Saltmarshes and tidal mudflats.

FORAGE VALUE High forage value for shore birds.

CHROMOSOME NUMBER C. salina 2n = 84, C.s. var. subspathacea 2n = 78-80.



Carex salina

49. CAREX CRINITA Lam., Encycl. Supply. 3:393. 1791.

49a var. *gynandra* Schw. & Torr., Ann. Lyc. N.Y. 1:360. 1825.

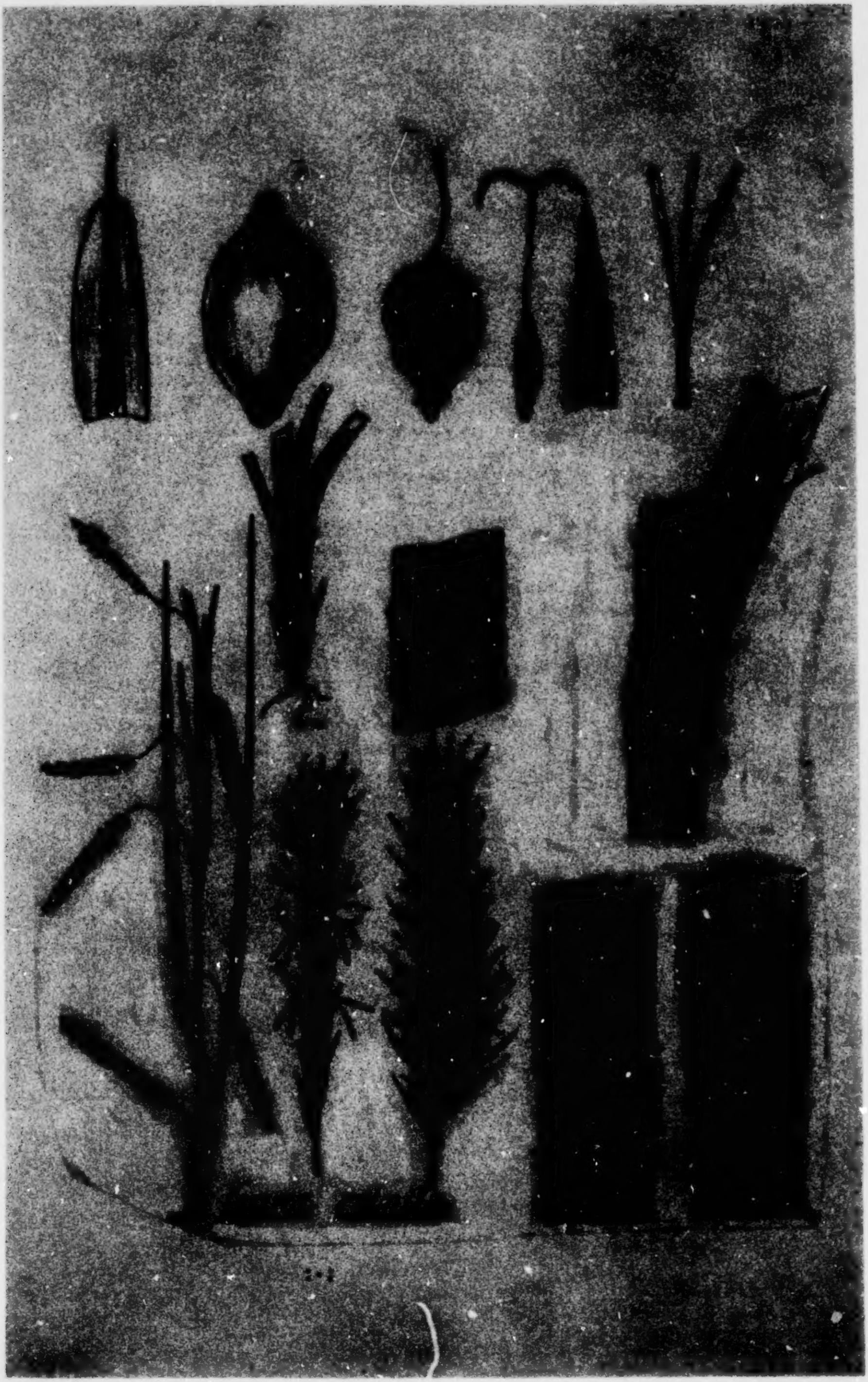
49b var. *simulans* Fern., Rhodora 4:219. 1902.

ROOTSTOCKS	Stolons elongate, leafless; roots yellow and felty.
SHEATHS	Basal sheaths dark-brown to reddish-brown, the inner basal sheaths fulvous with pinkish tinge, upper sheaths ladder-fibrillose; inner band hyaline, summit not prolonged, concave to retuse, sometimes piloseglandulose; ligule much longer than broad.
LEAVES	Ascending 0.1-1.0 m long, 0.4-1.2 cm wide, flat to conduplicate, ribs prominent and serrulate, margins scabrous to sheaths.
CULMS	Aphyllopodic, with 4-6 somewhat distichous leaves, the lower leaves short and amplexicaul, or reduced to fibrillose sheaths; fertile culm 0.5-1.2 m tall, exceeding leaves, sides 3-ribbed, angles acuminate, scabrous, transverse section with large central cavity.
SPIKES	Staminate spikes 1-3, 3.0-5.0 cm long, slenderly linear-cylindric, often pistillate at summit, long-peduncled; pistillate spikes 2-5, distant or approximate, pendulous, 0.3-1.0 dm long, thick linear-cylindric, sometimes staminate tipped; lowermost bract foliaceous, exceeding inflorescence, upper bracts gradually reduced and setaceous.
SCALES	Pistillate scales greenish-brown, midrib darker, trinervate, prolonged to long awn with serrulate margins above blade, the awn equaling or shorter than length of blade; blades shorter and narrower than perigynium, obovate to ovate, acuminate to retuse. Staminate scales slightly awned or acute, shorter than pistillate scales.
PERIGYNIA	Fulvous, 2.2-4.3 mm long, orbicular, margins prominently elevated, nerveless or with median nerve, base substipitate and spongy, apiculate; beak 0.5 mm long, terete.
ACHENE	Brown, oblong to obovate, variously contorted, deeply invaginated on one or both margins, substipitate; style bent; stigmas 2, short.

49a var. *gynandra*. Culms 5-15 dm tall; leaves 6-12 mm wide, sheaths hispidulous; terminal spikes usually pistillate at summit; pistillate spikes pendulous, 3-10 mm long.

49b var. *simulans*. Culms 3-8 dm tall; leaves 4-6 mm wide, sheaths hispidulous; terminal spike pistillate nearly to base; pistillate spikes ascending 1-3 cm long.

DISTRIBUTION	Temperate-boreal, eastern and central North America.
HABITAT	Alder swamps, gravelly banks of rivers, balsam fir-white birch forests, and mountain maple thickets.
FORAGE VALUE	High forage value for birds.



ACUTEA Fries, Fl. Scan. 191. 1835.

50. CAREX AQUATILIS Wahl., Sv. Vet.-Akad. Nya Handl. 24:165. 1803.

50a var. altoir (Rydb.) Fern., Rhodora 44:295. 1942.

50b Ssp. stans (Drejer) Hulten, Sv. Vet.-Akad. Nya Handl. 8:74. 1962.

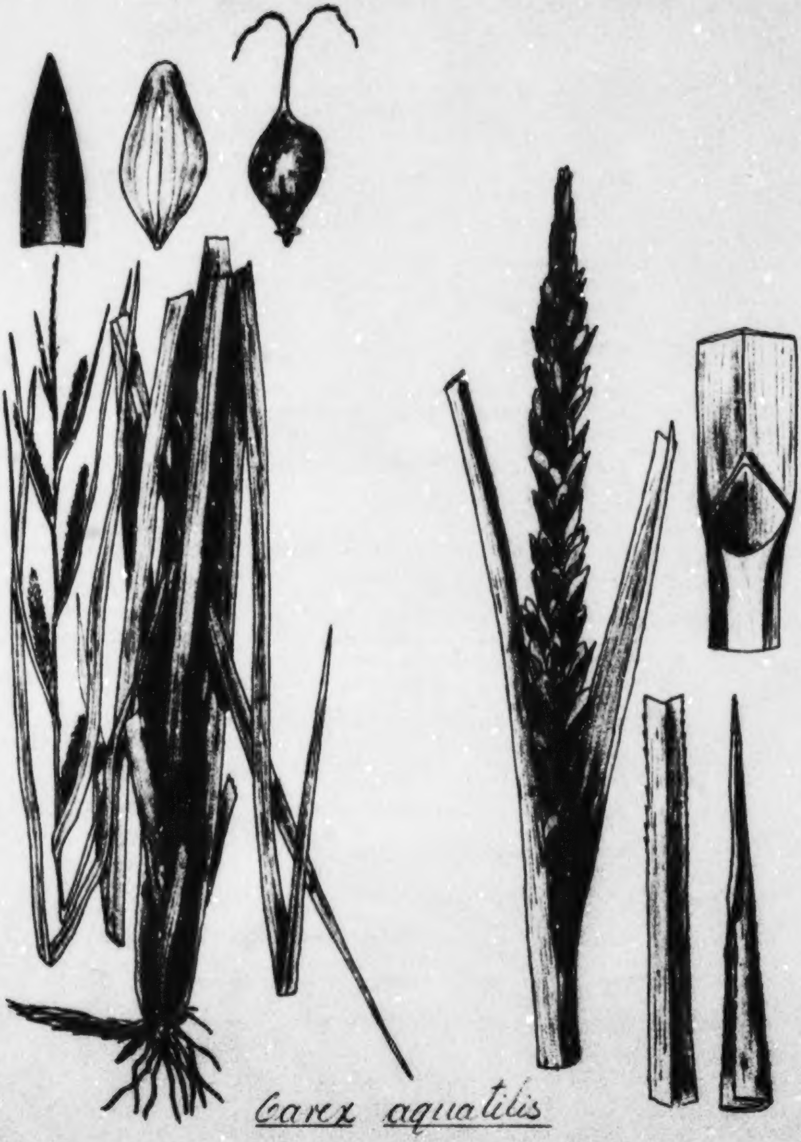
ROOTS	Rhizomes sympodial, creeping, cord-like, with brown or purplish scales, never felty.
SHEATHS	Outer basal sheaths brown, persistent, fibrillose; inner basal sheaths red, upper sheaths septate-nodulose, piloseglandulose dorsally, reddish-brown,punticulate, summit hyaline, concave; ligule longer than broad.
LEAVES	Firm, ascending-erect, glaucous-green, 5.0-8.0 dm long, equaling or exceeding culm, flat or plicate, attenuate and revolute at apex, scabrous on keel and margins to near sheath.
CULMS	Phyllopodic, clothed in marcescent leaves at base, with 8-15 leaves on lower 1/3, culms erect, 0.5-1.0 m tall, sides 4-5 ribbed, angles acuminate and smooth or sparsely serrulate at summit, transverse section with large triangular central cavity and prominent vascular bundles.
SPIKES	Staminate spikes 1-2, 2.0-2.5 cm long, slender, linear, peduncled; pistillate spikes 3-5, erect, approximate or subdistant 2.0-6.0 cm long, linear-cylindric, clavate-based, the lowermost short-peduncled, the uppermost sessile and androgynous; bracts foliaceous, the lowermost overtopping inflorescence, auricles purple.
SCALES	Pistillate and staminate scales purplish or paler, with narrow-hyaline margins, midrib green, trinervate, reaching to 2/3 of blade, or rarely cuspidate in lowermost scales, equaling or exceeding perigynium, oblong-ovate, acuminate.
PERIGYNIA	Stramineous or fulvous, 2.5-3.0 mm long, elliptic-obovate, biconvex, obscurely nerved, substipitate; beak inconspicuous.
ACHENE	Loosely enveloped by perigynium, fulvous and suffused with purple, obovate, lenticular, substipitate; abrupt-apiculate; style yellowish; stigmas 2, whitish becoming blackish with age, 1.5 mm long.

50a var. altoir. Culms 0.5-1.5 m tall, angles acute scabrous at summit, staminate spikes 2-5, terminal spike 3-5 cm long.

50b Ssp. stans. Culms 1-5 dm tall; solitary staminate spike.

DISTRIBUTION	Circumpolar temperate-arctic.
HABITAT	Minerotrophic and eutrophic fens, and occasionally stagnant pools along roadside ditches in calcareous regions.
FORAGE VALUE	Very high nutritional forage plant for both domesticated animals and wildlife.

CHROMOSOME NUMBER 2n = 76.



Carex aquatilis

51. CAREX BIGELOWII Torr. & Schw., Ann. Lyc. N.Y. 1:67. 1825.

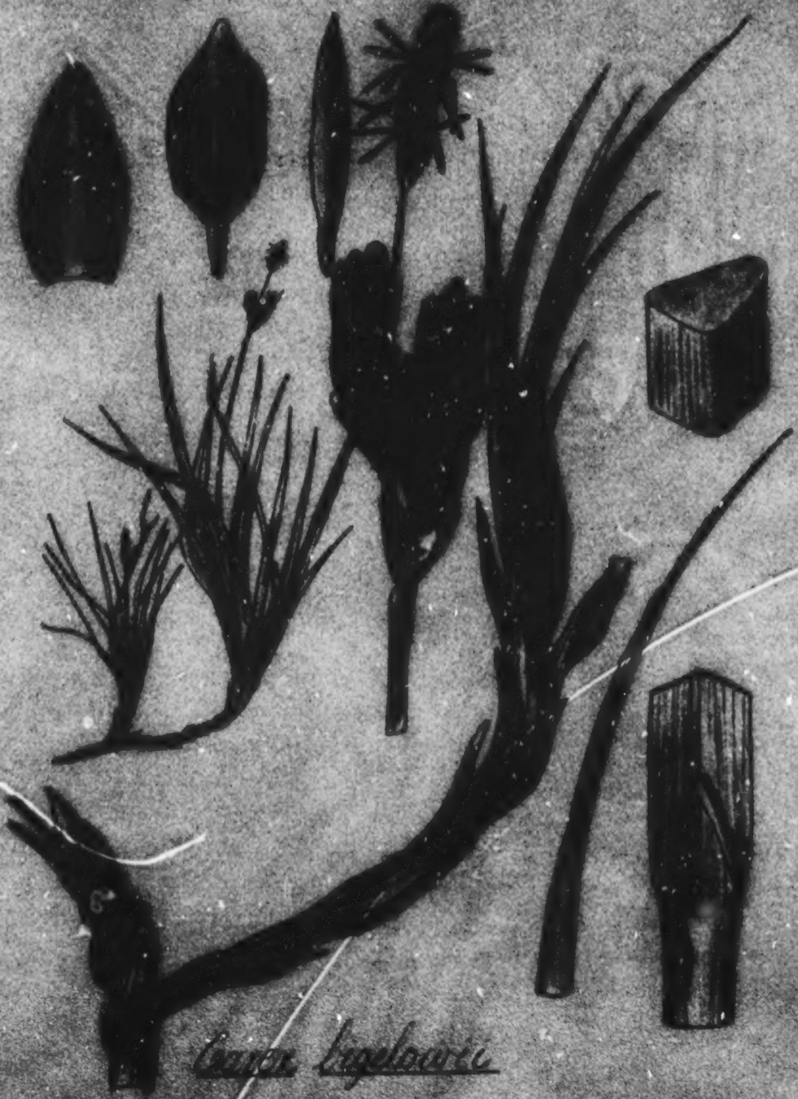
ROOTSTOCKS	Rhizomes sympodial, persistent, creeping or ascending, cord-like, with reddish scales; stoloniferous; roots dark-brown and felty.
SHEATHS	Outer basal sheath vinous, fibrillose; inner basal sheaths brown; upper sheaths not piloseglandulose dorsally, summit hyaline, convave; ligule longer than broad.
LEAVES	Dark green, 0.4-1.1 dm long, 2.0-4.5 mm wide, flat to plicate, revolute when dried, margin smooth, or occasionally serrulate near apex.
CULMS	From leafy tufts, 1-few, strongly phyllopodic with 3-5 fresh leaves, and 5-15 marcescent leaves clustered at base, culms erect, 1.0-4.0 dm tall, slender, sides faintly ribbed, angles obtuse, smooth, transverse section solid with conspicuous marginal vascular bundles.
SPIKES	Terminal spike staminate or frequently gynaecandrous, 0.3-2.5 cm long, slender, linear, usually peduncled; pistillate spikes 1-6, approximate or subdistant, erect, 0.5-2.5 cm long, 3.0-6.0 mm wide, linear-cylindric, clavate at base, the upper spikes sessile the lower peduncled; lowermost bract setaceous the upper scale-like, auricles blackish.
SCALES	Pistillate scales purple, with thin hyaline margin, midrib green, trinervate, reaching to 3/4 of blade; about equaling perigynium, obovate, obtuse. Staminate scales narrower, acuminate.
PERIGYNIA	Light-green and strongly suffused with purple, 2.0-4.0 mm long, oblong-obovate, biconvex, margins elevated, nerveless, stipitate; beak inconspicuous 0.1-0.5 mm long, terete.
ACHENE	Light-brown, granulose, frequently filling perigynium, lenticular or occasionally trigonous, substipitate; style short; stigmas 2 or rarely 3.

DISTRIBUTION Circumpolar arctic-boreal.

HABITAT Alpine and subalpine heaths and slope fens.

FORAGE VALUE Very high nutritionally but not extensively foraged.

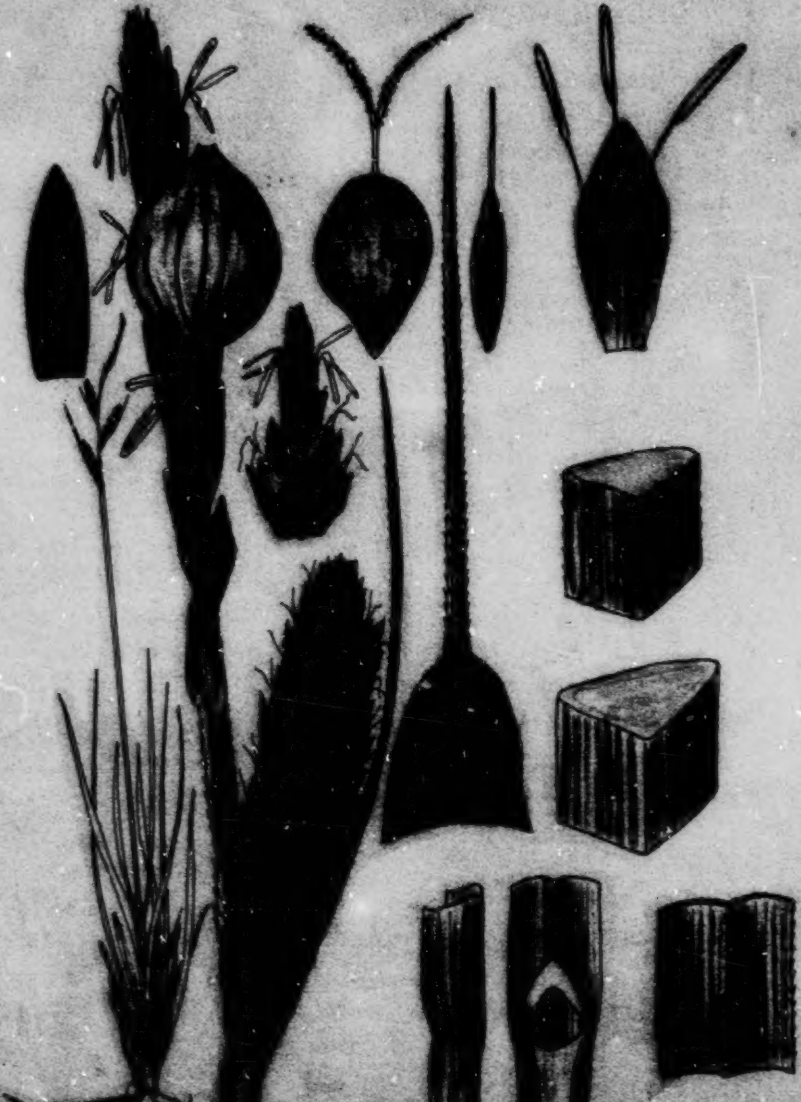
CHROMOSOME NUMBER 2n = 70.


Carex bigelowii

52. CAREX NIGRA All., Fl. Pedem. 2:267. 1785.

52a var. *strictiformis* (Bailey) Fern., Rhodora 44:299. 1942.

ROOTSTOCKS	Rhizomes sympodial, creeping or ascending, yellowish brown, with brown scales; strongly stoloniferous; roots 0.5-1.0 mm thick.
SHEATHS	Basal sheaths brown; summit of inner band hyaline, prolonged, concave; ligule as broad as long.
LEAVES	Glaucous-green, 0.1-1.0 m long, exceeding culms, 1.0-3.0 mm wide, plicate, attenuate and revolute when dried, margins and keel serrulate on upper 1/4 or frequently serrulate to sheaths.
CULMS	From leafy tufts, sterile culms short and leafy, fertile culms aphyllopodic, with 3-4 leaves on lower 1/4, marcescent leaves clustered at base, culm slender, sides prominently 7-8 ribbed, angles obtuse below middle, acuminate and serrulate near summit, transverse section solid with conspicuous vascular bundles.
SPIKES	Staminate spike terminal, occasionally subtended by 1-2 small lateral spikes, 1.0-3.0 cm long, slender, linear-cylindric, the peduncle 1.0-1.5 cm long with serrulate angles; pistillate spikes 2-4, upper usually androgynous, contiguous or separate, 1.0-4.0 cm long, 2.0-5.0 mm wide, thick linear-cylindric, somewhat stubby with clavate base; lowermost bracts setaceous, serrulate margined exceeding inflorescence, uppermost reduced to scale-like, auricles blackish with hyaline margins.
SCALES	Pistillate scales blackish-purple or brown, midrib green, obscurely trinervate, very slender, evanscent near summit, blade shorter than perigynium, oblong, acuminate. Staminate scales usually darker and larger, oblanceolate.
PERIGYNIA	Appressed-ascending, stramineous to fulvous, 2.0-3.0 mm long, suborbicular, biconvex, finely nerved to near summit, substipitate at base; beak obscure, terete.
ACHENE	Closely enveloped by perigynium, fulvous, and suffused with purple, orbicular, substipitate; style yellowish, short, stigmas 2, whitish, short and slender.
	American plants represented by var. *strictiformis*.
DISTRIBUTION	Temperate-boreal, amphiatlantic.
HABITAT	Oligotrophic and mesotrophic bogs, minerotrophic and eutrophic fens; occasionally in alder swamps. Also a hemerophilic plant on trails through wet peaty soils on coastal heaths.
FORAGE VALUE	Nutritionally high and grazed by sheep and cattle.
CHROMOSOME NUMBER	2n = 82, 84.


Carex nigra

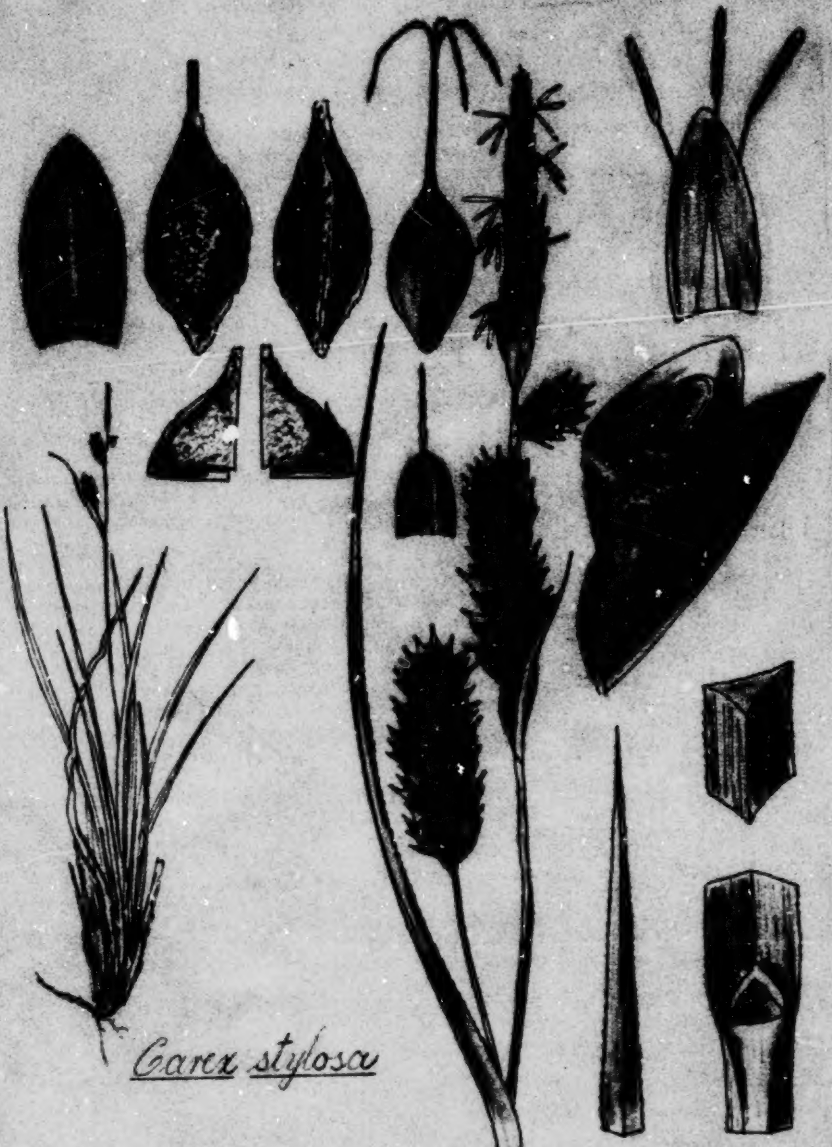
53. CAREX LENTICULARIS Michx., Fl. Bor. Am. 2:172. 1803. (Not Don 1819.)

ROOTSTOCKS	Stolons short; roots elongate, yellow and felty.
SHEATHS	Tight, summit of inner band hyaline, prolonged truncate; ligule truncate with inner band, longer than broad.
LEAVES	Dark-green, 2.0-6.5 dm tall, 2.0-3.0 mm wide, plicate to conduplicate, margins scabrous to near sheath, usually exceeding culm.
CULM	Phyllopodic, with 4-6 leaves at base, marcescent leaves present, culm erect or curving, 1.5-6.0 dm tall, sides faintly ribbed, angles acute or nearly winged and scabrous on upper 1/2, transverse section solid.
SPIKES	Terminal spike staminate or frequently androgynous, 1.0-3.0 cm long, slender, linear-cylindric, long-peduncled; lateral spikes 3-5, pistillate, crowded and overlapping, 1.5-3.0 cm long, slender, linear-cylindric, the lower short peduncled the upper sessile; lowermost bracts foliaceous, exceeding inflorescence the uppermost reduced to scale-like.
SCALES	Pistillate scales brown to purple, midrib green, trinervate broad, reaching 4/5 of blade, shorter and narrower than perigynium, oblong, obtuse; staminate scales larger, and frequently darker, oblanceolate, obtuse.
PERIGYNIA	Glaucous, granulose, 1.5-3.5 mm long, suborbicular, biconvex, distinctly brown nerved, substipitate; beak minute, 0.1-0.5 mm long, terete.
ACHENE	Closely enveloped by perigynium, dark-brown, suborbicular, lenticular, abruptly apiculate; style 0.5 mm long; stigmas 2, 1.5 mm long.
DISTRIBUTION	Boreal, transcontinental of North America.
HABITAT	Rich sites along banks of rivers and ponds, serpentine barrens, subalpine slope fens, and occasionally on the edges of minerotrophic fens.
FORAGE VALUE	Good seed source for birds.

ATRATAE Kunth, Enum. Pl. 2:431. 1837.

54 CAREX STYLOSA C.A. Meyer, Mem. Acad. Sci., St. Petersb. 1:222. 1831.

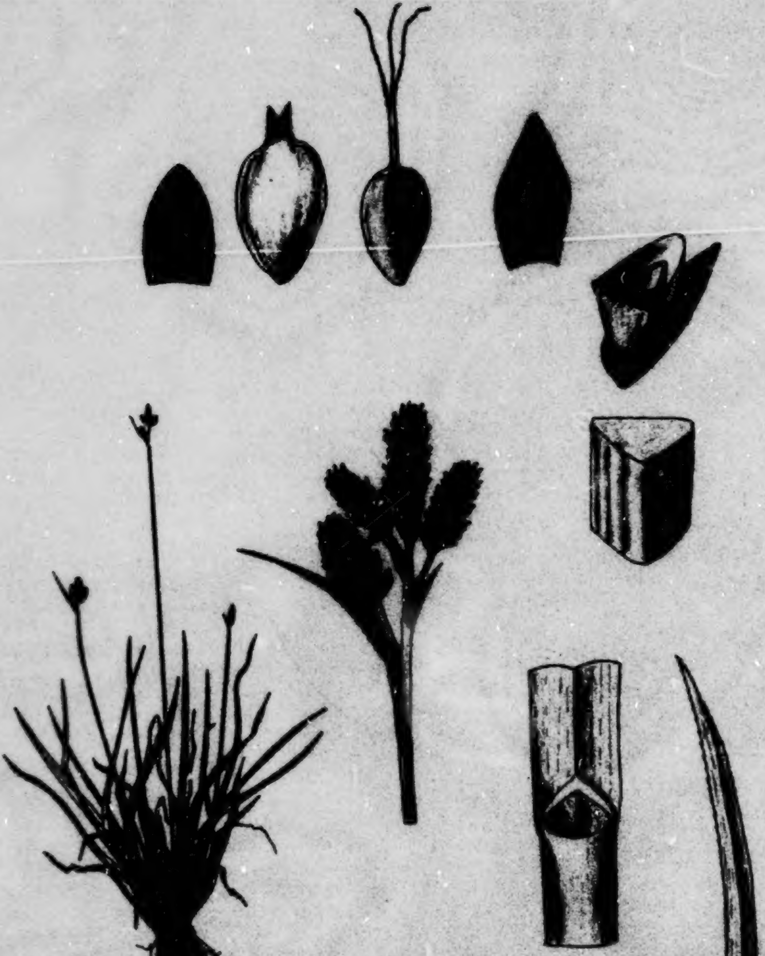
ROOTSTOCKS	Stolons short-creeping, with strong brown roots.
SHEATHS	Basal sheaths brown, inner band of sheath hyaline, soon fracturing,summit concave; ligule broader than long.
LEAVES	Marcescent leaves crowded and numerous; fresh leaves subrigid, pale-green, 1.0-4.0 dm long, 1.0-3.0 mm wide, flat upper 1/5 attenuate and plicate, margins serrulate to sheath.
CULMS	From dense tufts, erect or curving, usually divergent; 1.0-5.0 dm tall, exceeding leaves, slender, sides concave and lightly sulcate, angles acute, scabrous except near sheath, transverse section solid with conspicuous vascular bundles.
SPIKES	Terminal spike staminate, or rarely gynaecandrous, 0.5-1.0 cm long, peduncled; pistillate spikes 1-4, subdistant, 1.0-8.0 cm long, or the uppermost 0.5 cm long, 5.0-7.0 mm thick, linear-cylindric, or the smallest ovoid, lowermost long-peduncled, upper short-peduncled or sessile; lowermost bract sheathing foliaceous, serrulate margined, not exceeding inflorescence, upper bracts reduced to scale-like, setaceous, auricles purple.
SCALES	Pistillate scales dark-purple with hyaline margins, midrib pale-green, slenderly trinervate and barely reaching summit of blade; exceeding body of perigynium, oblong-ovate, obtuse to acuminate. Staminate scales with broader hyaline margins, midrib broadly trinervate below middle, ovate to ovate-lanceolat obtuse.
PERIGYNIA	Brown, becoming reddish or purple, granulose, 2.0-2.5 mm long, ellipsoid, trigonous, margins elevated and prominent, substipitate; beakless or nearly so, orifice terete.
ACHENE	Closely enveloped by perigynium, stramineous to fulvous, ovate to obovate, trigonous, substipitate; style persistent and prominent above orifice of perigynium, 1.0-1.5 mm long; stigmas 3, slender.
DISTRIBUTION	Boreal, transcontinental North America and amphipacific.
HABITAT	Alpine and subalpine slope fens and peaty soils on coastal heaths in western Newfoundland.
FORAGE VALUE	Same as C. nigra.
CHROMOSOME NUMBER	2n = 52.



Carex stylosa

55. CAREX NORVEGICA Ssp. inferalpina Hulten, Fl. Yuk. 348. 1942. (Not Wahl. 1805.)

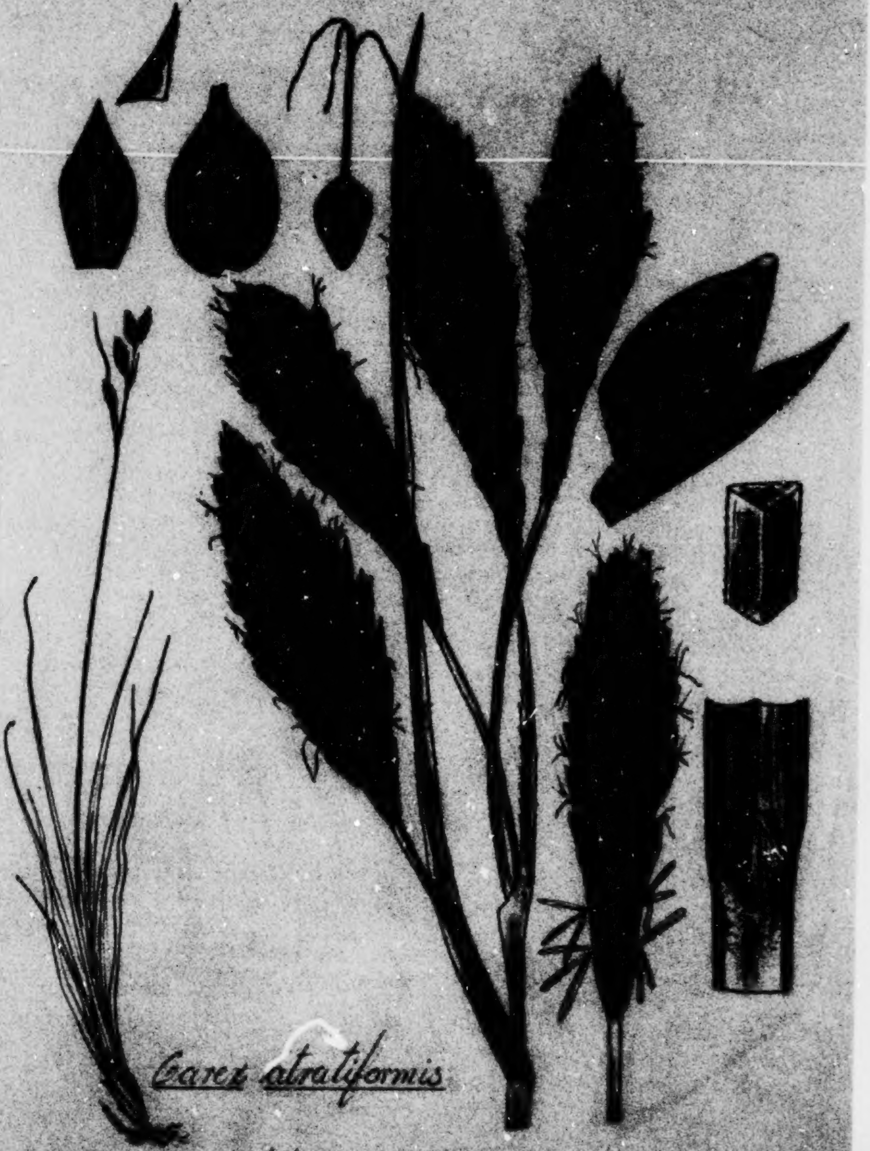
ROOTSTOCKS	Stolons short-creeping, with strong brown roots.
SHEATHS	Basal sheaths brown to vinous; inner band of leaf sheath hyaline or brown tinged, concave at summit; ligule broader than long.
LEAVES	Marcescent leaves crowded and numerous; fresh leaves rigid, dark-green, 1.0-4.0 dm long, 1.0-3.0 mm wide, flat to slightly convolute, margins and median rib serrulate at summit.
CULMS	From dense tufts, stiffly erect or slightly curved, 1.0-5.0 dm tall, exceeding leaves, sides concave, sulcate, angles obtuse, smooth, transverse section solid.
SPIKES	Head 1.0-1.5 cm long, glomerate; terminal spike gynaecandrous, elliptic-cylindric, 3.0-5.0 mm long, sessile or nearly so; lateral 2-3, pistillate, elliptic-cylindric, 3.0-4.0 mm long, short-peduncled; lowermost bract foliaceous, purple-auricled, equaling or barely exceeding inflorescence, uppermost bracts reduced to scale-like.
SCALES	Pistillate scales dark-purple, narrow hyaline margined, midrib green, slenderly trinervate, costa prominent dorsally; shorter than perigynium, ovate, obtuse to acuminate. Staminate scales larger, acute.
PERIGYNIA	Fulvous becoming castaneous or purple, granulose, 2.0-2.5 mm long, obovoid, trigonous, margins prominently elevated ventrally, abruptly beaked; beak minute, purple, emarginate, margins obscurely serrulate.
ACHENE	Loosely enveloped by perigynium, fulvous to castaneous, obovate, trigonous; style persistent, 1.0-1.5 mm long; stigmas 3, reddish, slender, 2.0 mm long.
DISTRIBUTION	Temperate-boreal, amphiatlantic and amphipacific.
HABITAT	Slope fens on coastal heaths along the Straits of Belle Isle.
FORAGE VALUE	High nutritional value and grazed by sheep.
CHROMOSOME NUMBER	2n = 56.



Carex norvegica Ssp. inferalpina

56. CAREX ATRATIFORMIS Britt., Bull. Torrey Bot. Club. 22:222. 1895.

ROOTSTOCKS	Rhizomes and stolons short; roots dense, light-brown to whitish, smooth.
SHEATHS	Basal sheaths vinous, leuconeurous, lustrous, upper sheaths loose; inner band hyaline, brown puncticulate at concave summit; ligule longer than broad, acuminate.
LEAVES	Marcescent leaves numerous; fresh leaves ascending, greyish-green, 1.0-7.0 dm long, 2.0-5.0 mm wide, flat to conduplicate, attenuate to short acicular tip, margins and keel serrulate on upper 1/2.
CULMS	Loosely cespitose, erect, flexuous at summit, phyllopodic with 2-4 leaves on lower 1/4, 0.2-1.0 m tall, sides prominently few-ribbed and obscurely piloseglandulose near summit, angles acuminate, serrulate on upper 1/4, transverse section with small triangular central cavity.
SPIKES	Approximate, 3-6, subterminal, on slender curved peduncles, terminal spike gynaecandrous with clavate staminate base, laterals pistillate, occasionally gynaecandrous, reddish-brown to purplish-black, 1.0-2.5 cm long, ellipsoid, with short-clavate base; bracts sheathing; foliaceous with serrulate margins, or the upper scale-like, lowermost bract equaling or exceeding inflorescence.
SCALES	Pistillate scales dark purple-brown, midrib green, trinervate, the costa serrulate dorsally; 3.0-4.0 mm long, ovate, acuminate. Staminate scales appressed, light-brown below.
PERIGYNIA	Dark brown, puncticulate, 2.5-4.0 mm long, ovoid to ellipsoid, biconvex, obtuse at base; beak minute, bidenticulate.
ACHENE	Loosely enveloped by perigynium, light brown to fulvous, obovoid, substipitate, apiculate; style persistent, but not above orifice; stigmas 3, slender.
DISTRIBUTION	Boreal, transcontinental North America.
HABITAT	Most frequently on alpine and subalpine slope fens and calcareous coastal heaths; occasionally in minerotrophic and mesotrophic fens balsam fir tuckamore and peaty banks of rivers and ponds. Becomes strongly hemerophilic in disturbed sites in these communities.
FORAGE VALUE	High nutritional value and grazed by sheep and cattle.



Carex atratiformis

57. CAREX BUXBAUMII Wahl., Sv. Vet.-Akad. Nya Handl. 24:163. 1803.

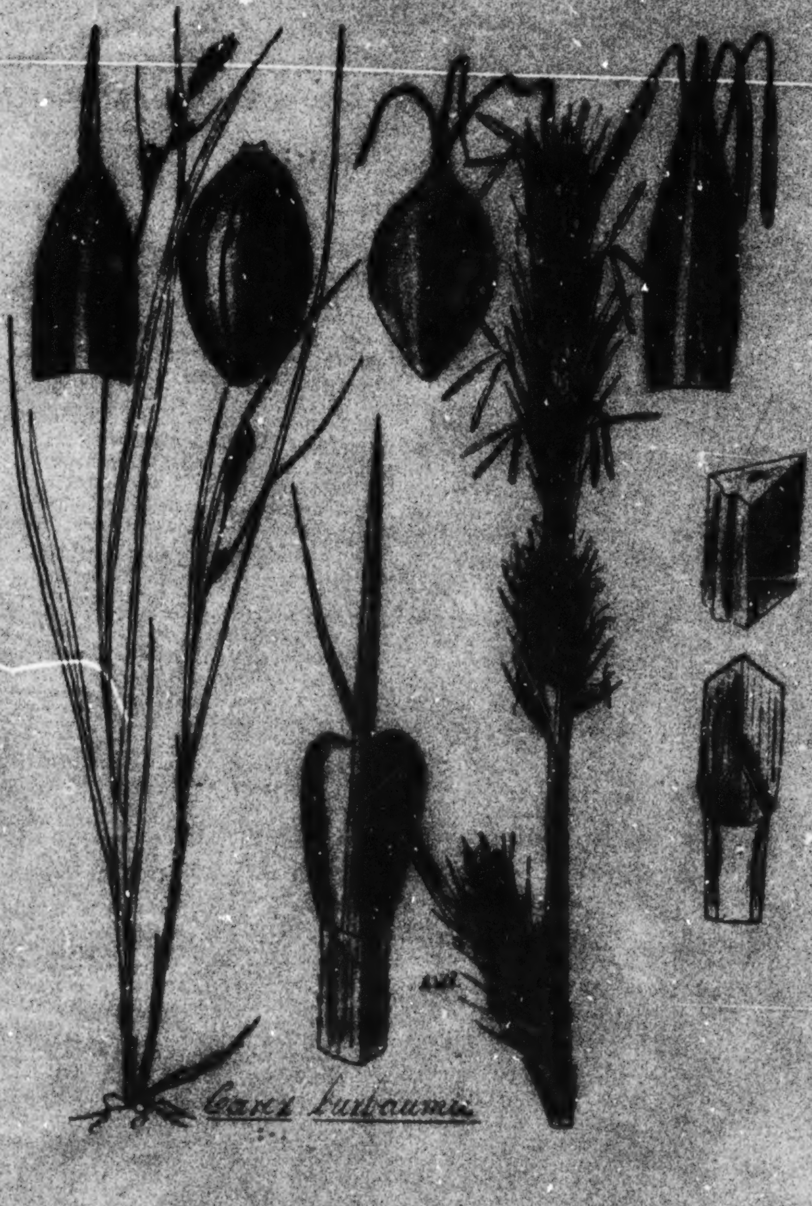
57a forma dilutior Kukenth., in Engler, Pflanzenr. 4(20). 1909.

ROOTSTOCKS	Rhizomes sympodial; not far creeping, brown becoming purplish near tip, cord-like; leafy; roots dense, fulvous to brown.
SHEATHS	Basal sheaths red, older sheaths fibrillose; inner band hyaline, ladder-fibrillose, summit concave; ligule longer than broad, acuminate.
LEAVES	Ascending, glaucous-green, 0.1-8.0 dm long, 1.5-4.0 mm wide, plicate to conduplicate, sharply keeled, margins scabrous on upper 1/3.
CULMS	Cespitose, erect, aphyllopodic, with 2-4 leaves near base, 0.2-1.0 m tall, median rib prominent on one side, angles acute below middle, winged and serrulate above middle, transverse section with small central cavity and small marginal vascular bundles.
SPIKES	Terminal spike gynaecandrous with clavate staminate base, or wholly staminate, 0.8-2.0 cm long, thick linear-cylindric, short-stalked; lateral spikes 2-3, approximate and sessile, or the lowermost remote and peduncled, 0.2-1.5 cm long, ovoid or linear-cylindric; lowermost bracts sheathing, foliaceous, serrulate margined, usually exceeding inflorescence, the upper reduced to scale-like purple and retuse auricles, margins and costa serrulate.
SCALES	Pistillate scales purple, midrib green, trinervate, prolonged to long awn with minutely serrulate margins and costa; blade equaling perigynium, ovate. Staminate scales larger, lanceolate, acuminate, not long awned.
PERIGYNIA	Fulvous, granulose, 2.0-3.0 mm long, elliptic-ovate, biconvex, nerved on both sides; beakless or nearly so, terete or bidentulate.
ACHENE	Closely enveloped by perigynium, brown and white-granulose, obovate, trigonous, substipitate; style short or lacking; stigmas 3, 1.5-2.0 mm long.

57a forma dilutior. Perigynia whitish, inconspicuously nerved, beakless, orifice terete.

DISTRIBUTION	Temperate-boreal, transcontinental North America, amphi-atlantic, amphipacific and disjunct in alpine regions of Eurasia.
HABITAT	Most frequent on mesotrophic bogs, minerotrophic, eutrophic and subalpine slope fens; occasionally in alder swamps and open black spruce forest fens.
FORAGE VALUE	High in nutritional value, important forage plant in winter range of caribou, moose and mountain birds.

CHROMOSOME NUMBER 2n = 74, 100.



Carex buxbaumii

LIMOSAE Tuckerm., Enum. Caric. 12. 1843.

58. CAREX RARIFLORA (Wahl.) Smith, Eng. Bot. 2516. 1813.

ROOTSTOCKS Rhizomes short, sympodial, forking; roots dark-brown, tomentulose.

SHEATHS Basal sheaths red to purplish-black; inner-band brown-tinged and brown puncticulate at concave summit; ligule 2.5 mm high, longer than broad, acuminate.

LEAVES Ascending-recurved, 0.2-3.0 dm long, 1.0-2.0 mm wide, plicate to flat, margins smooth except near summit.

CULMS Solitary from individual tufts, erect, usually aphyllopodic, with 3-5 leaves at base, sides prominently 4-ribbed, angles obtuse, smooth, transverse section with small round central cavity and conspicuous marginal vascular bundles.

SPIKES Terminal spike erect, staminate. 0.5-2.0 cm long, slenderly linear-cylindric on straight peduncle, lateral spikes 1-3, distant or the lowermost remote, pistillate, 0.5-1.5 cm long, the lowermost linear-cylindric on long peduncle, with subdistant flowers, the upper reduced to oblong-cylindric and shorter peduncles, with compact flowers; lowermost bracts setaceous, spathiform, upper reduced to scale-like, awns slightly serrulate at summit, auricles purple, retuse.

SCALES Pistillate scales purple-brown, midrib green, trinervate, costa slightly prolonged; longer than perigynium, ovate, obtuse to acuminate. Staminate scales, lanceolate, acuminate.

PERIGYNIA Fulvous, granulose, 3.0-3.5 mm long, ellipsoid-ovoid, nerved to near summit, substipitate; beakless.

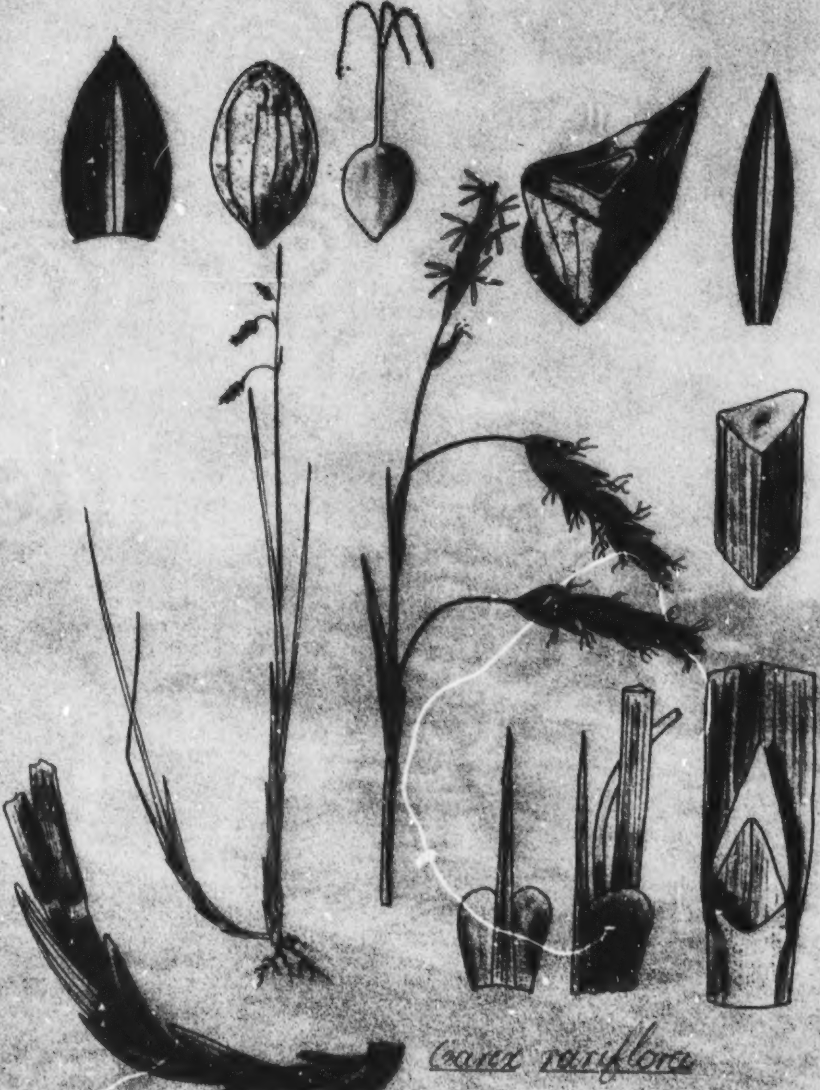
ACHENE Loosely enveloped by perigynium, brown, obovoid, substipitate; style 1.0 mm long; stigmas 3, slender.

DISTRIBUTION Circumpolar arctic-boreal.

HABITAT Alpine and subalpine slope fens, calcareous coastal heaths and occasionally on mesotrophic bogs.

FORAGE VALUE Same as C. buxbaumii.

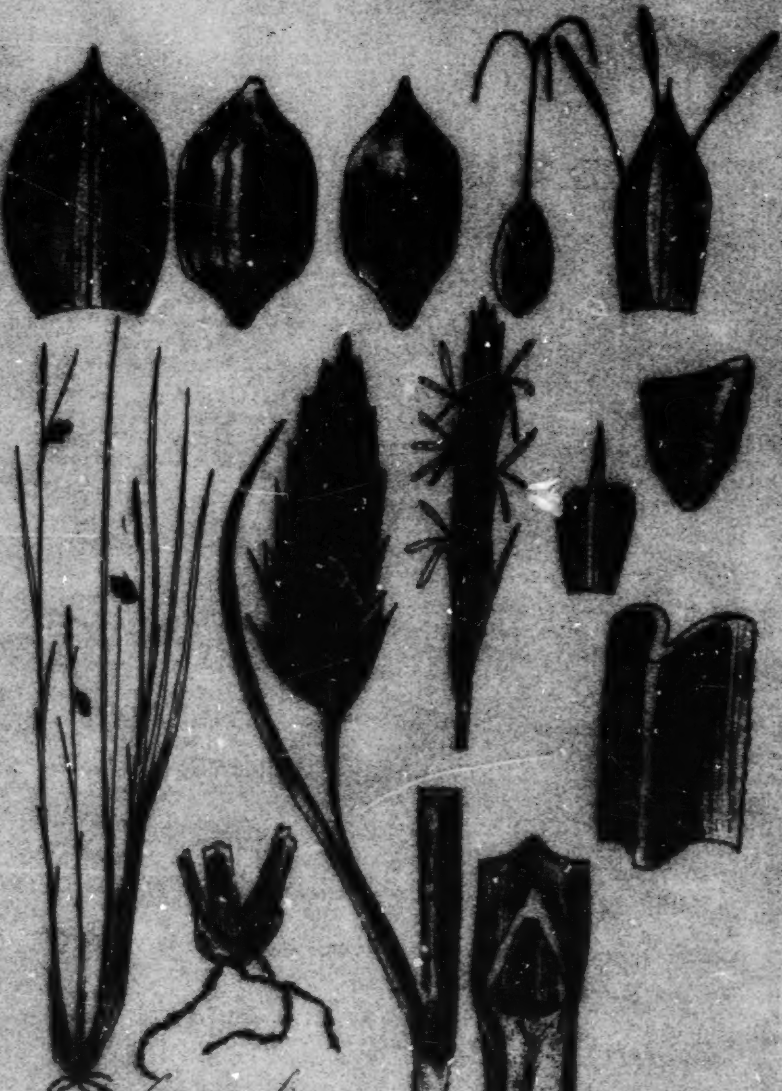
CHROMOSOME NUMBER 2n = 50, 52, 54.



Carex rariflora

59. CAREX LIMOSA L., Sp. Pl. 1:977. 1753.

ROOTSTOCKS	Rhizomes loosely forking; stolons creeping, surficial or subterranean, yellow, tomentose, covered with dark-brown marcescent scales.
SHEATHS	Outer basal sheaths dark-brown, inner basal sheaths reddish-brown; inner band often ladder-fibrillose, hyaline and puncticulate concave at summit; ligule variable, 1.0-1.5 mm high, usually longer than broad.
LEAVES	Principal leaves on sterile culms, glaucous-green, erect or recurved, 0.5-2.0 dm long, 2.0-4.0 mm wide, conduplicate, long-attenuate, margins scabrous above middle and frequently to base, prominently keeled.
CULMS	Solitary from old rootstocks, erect or recurved, aphyllopodic with 3-5 short, amplexicaul leaves, 1.5-6.0 dm long, variable from shorter to exceeding leaves, slender, sides 3-ribbed, angles acute, serrulate to base, transverse section with small central cavity or solid near base, marginal vascular bundles conspicuous.
SPIKES	Terminal spike staminate, erect, 1.0-3.0 cm long, slenderly linear-cylindric, long-peduncled; lateral spikes 1-3, pistillate or androgynous, 10-30 flowered, subdistant or remote, 1.0-1.5 cm long, ellipsoid-cylindric, the peduncle 0.5-3.0 cm long; lowermost bract foliaceous or setaceous, 2.0-6.0 cm long, sheathless, upper bracts scale-like with purple and retuse auricles.
SCALES	Pistillate scales fulvous to brown, midrib green, trinervate, costa prominent and slightly prolonged; covering perigynium, orbicular with abrupt acute apex. Staminate scales paler, narrower, oblong and abrupt acuminate.
PERIGYNIA	Glaucous, 2.0-4.0 mm long, oblong to ellipsoid, concave-trigonous, short-nerved, margins elevated ventrally, substipitate; beakless or nearly so, terete.
ACHENE	Loosely enveloped by perigynium, fulvous, obovoid, trigonous, substipitate; style 1.0-2.0 mm long; stigmas 3, slender.
DISTRIBUTION	Circumpolar temperate-boreal.
HABITAT	Exposed sites on minerotrophic fens.
FORAGE VALUE	High nutritional value, grazed by sheep, cattle and horses.
CHROMOSOME NUMBER	2n = 62.


Carex limosa

60. CAREX PAUPERCULA Michx., Fl. Bor. Am. 2:172. 1803.

60a var. *irrigua* (Wahl.) Fern., Rhodora 8:76. 1906.

60b var. *pallens* Fern., Rhodora. 8:77. 1906.

ROOTSTOCKS Stolons yellow, tomentose, covered with dark-brown marcescent scales.

SHEATHS Outer basal sheaths reddish-brown, lustrous, inner basal sheaths pinkish; inner band hyaline, summit truncate; ligule longer than broad, 1.0-2.0 mm high, acuminate.

LEAVES Principal leaves from sterile culms lax and curved at base, glaucous-green, 1.0-5.0 dm long, 2.0-4.0 mm wide, flat to double-folded, short attenuate, margins serrulate on upper 1/4.

CULMS Erect or curving, phyllopodic, with 1-3 leaves near base, 1.0-8.0 dm tall, exceeding leaves, slender, sides 3-ribbed, angles obtuse below, acute and serrulate near summit, transverse section with small central cavity and conspicuous marginal vascular bundles.

SPIKES Terminal spike staminate or gynaecandrous, 0.5-1.5 cm long, linear-cylindric, the peduncle capillary, 0.5-1.0 cm long erect or curved; lateral spike 2-3, pistillate, distant, or the uppermost paired, 0.5-2.0 cm long, the lowermost pendulous, the peduncle 2.5-4.0 cm long, upper spreading the peduncles 1.0-2.5 cm long, lowermost bract sheathless, foliaceous, exceedin inflorescence, margins and prominent keel serrulate on upper 1/2; upper bracts reduced to scale-like with stramineous auricles.

SCALES Pistillate scales brown, midrib green to brown, with thin hyaline margins, broadly trinervate, costa slightly prolonged, about twice as long as perigynium or frequently shorter, lanceolate, abruptly acuminate above middle. Staminate scales shorter, oblanceolate, obtuse.

PERIGYNIA Glaucous-green to brown, 3.0-4.0 mm long, ovoid ellipsoid, biconvex, 3-4 nerved, margins elevated,substipitate; beakless.

ACHENE Loosely enveloped by perigynium, fulvous, ovoid-obovoid, substipitate; style 1.0 mm long; stigmas 3, slender.

60a var. *irrigua*. Culms 1.0-8.0 dm tall, scales castaneous.

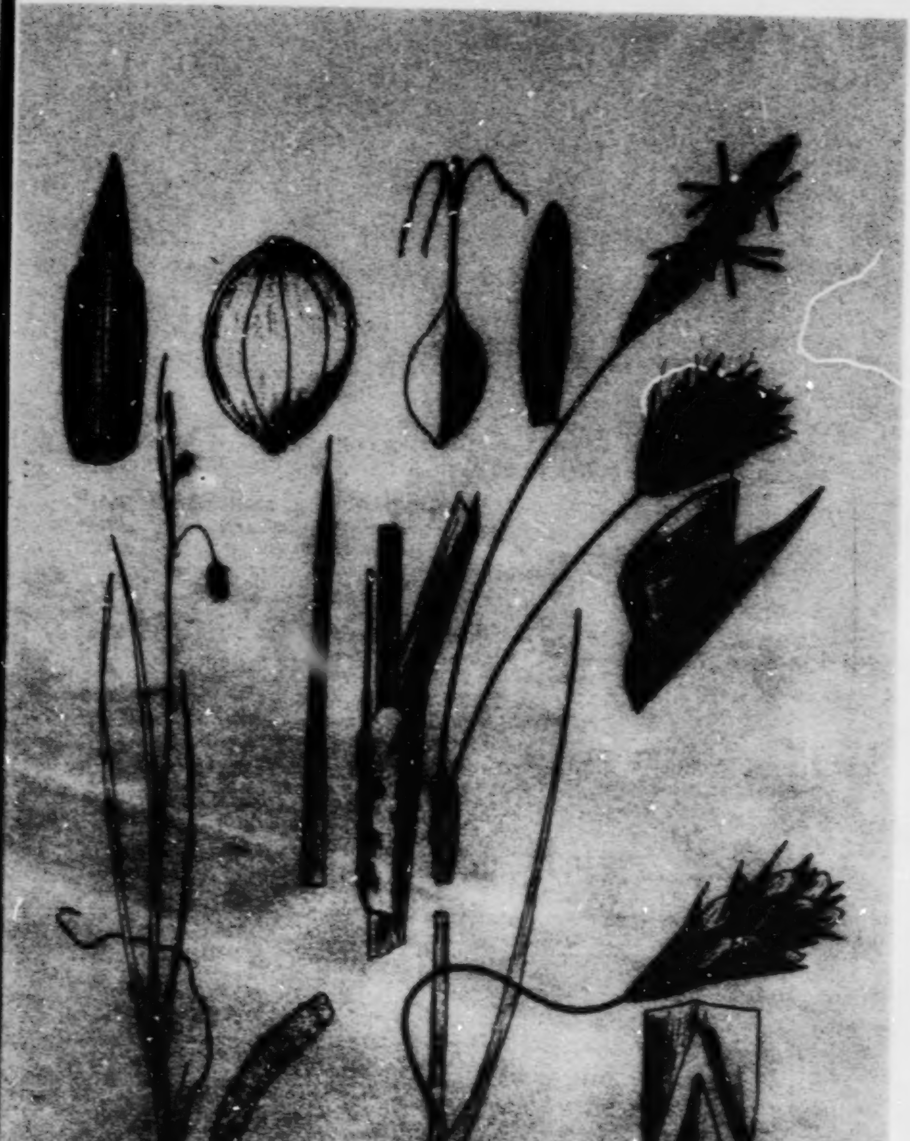
60b var. *pallens*. Culms 3.0-9.0 dm tall, scales fulvous or stramineous.

DISTRIBUTION Boreal, transcontinental North America, disjunct in South America and Eurasia.

HABITAT Subalpine slope fens, coastal heaths, black spruce fen forests and mesotrophic bogs.

FORAGE VALUE Reasonable good seed source for birds but apparently not grazed despite its good nutritional qualities.

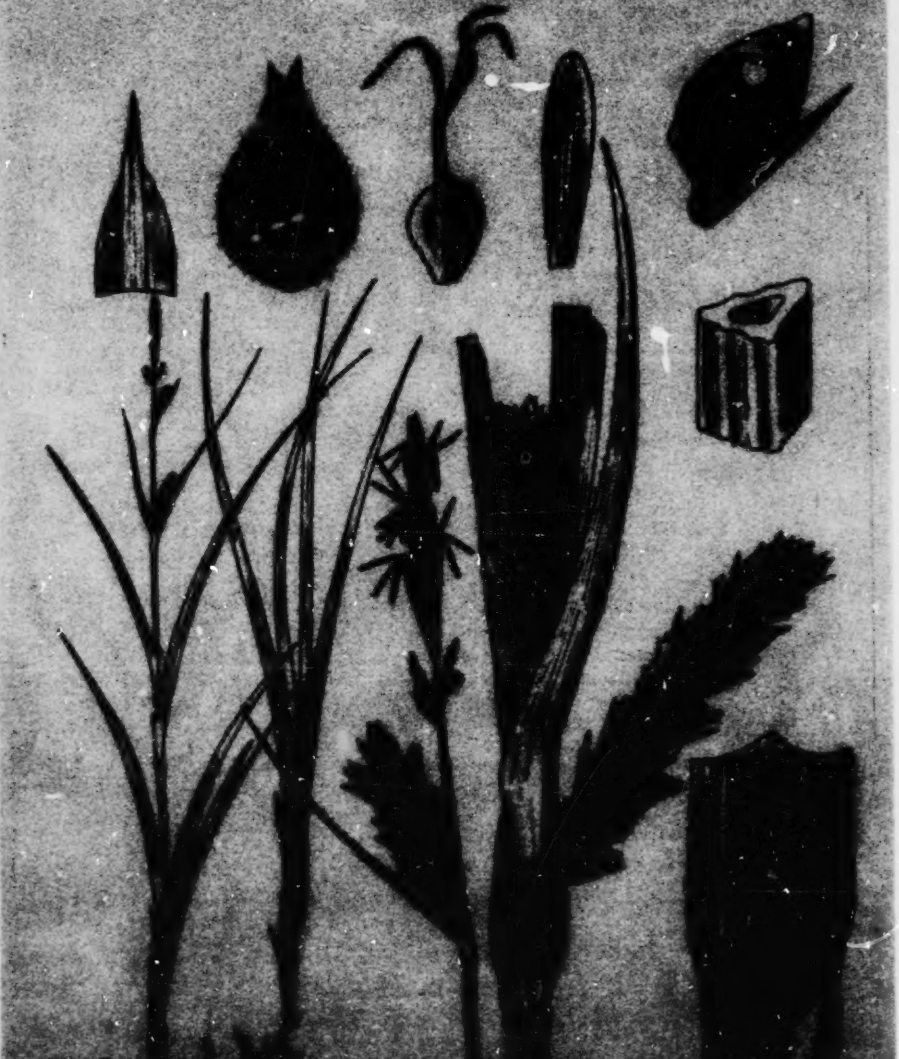
CHROMOSOME NUMBER 2n = 58.



HIRTAE Tuckerm., Enum. Caric. 14. 1843.

61. CAREX HOUGHTONII Torr., Ann. Lyc. N.Y. 3:413. 1836.

ROOTSTOCKS	Rhizomes monopodial, creeping, tough and scaly, brown to fulvous; stolons and roots fulvous, tomentose.
SHEATHS	Basal sheaths vinous, inner band vinous tinged, ladder-fibrillose, summit retuse; ligule narrow, as broad as long, acuminate.
LEAVES	Strongly ascending, dull-green, 1.0-2.0 dm long, 2.0-8.0 mm wide, conduplicate, long attenuate, septate-nodulose, margins revolute and serrulate on upper 1/3.
CULMS	Stiffly erect, 1-few, aphyllopodic with 5-7 somewhat distichous leaves, 1.5-9.0 dm tall, equaling leaves, sides prominently 2-3-ribbed, angles obtuse and smooth below, acuminate and serrulate at summit, transverse section with large triangular central cavity.
SPIKES	Terminal spike staminate or gynaecandrous, 2.0-4.0 cm long, slender, linear-cylindric, frequently subtended at base by 1-2 dwarfish spikes, on long scabrous peduncles, lateral spikes 1-3, pistillate, remote, erect, 1.0-4.5 cm long, 0.7-1.2 cm wide, linear-cylindric to ellipsoid; short-peduncled or subsessile; bracts sheathing, lowermost foliaceous with serrulate margins, exceeding inflorescence, uppermost reduced and setaceous.
SCALES	Pistillate scales with narrow blades, vinous with hyaline margins, midrib green, broad, excurrent, margins and costa serrulate; blade shorter and narrower than perigynia, ovate. Staminate scales longer, oblanceolate, obtuse.
PERIGYNIA	Dull brownish-green, 4.0-6.0 mm long, ovoid, biconvex, thick nerves concealed by griseous pilosity, base obtuse; beak 1.0 mm long, clefted.
ACHENE	Loosely enveloped by perigynium, brown, obovoid, trigonous, substipitate, apiculate; style articulate, thick; stigmas 3, 1.5 mm long.
DISTRIBUTION	Temperate-boreal, endemic to the eastern seaboard of North America.
HABITAT	Rare, dry sandy soils in north-central Newfoundland; occasionally on dry roadside gravels but not hemerophilic *per*. *se*.
FORAGE VALUE	Insignificant.



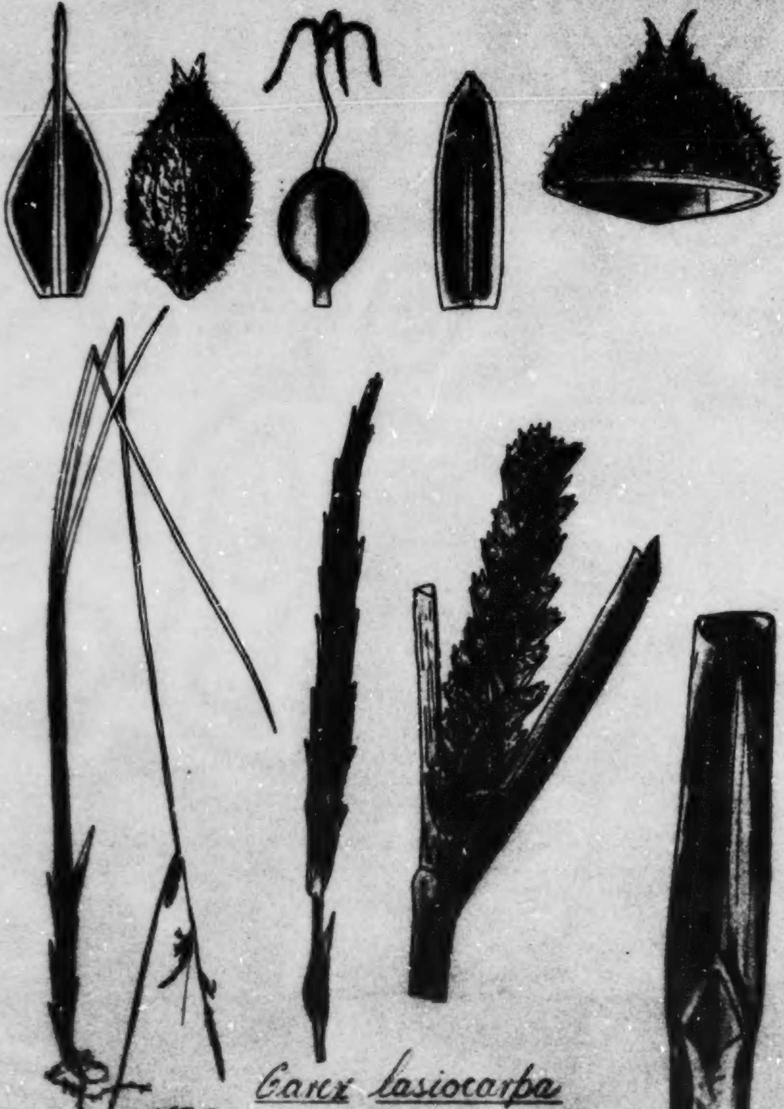
62. CAREX LASIOCARPA Ehrh., Hannov. Mag. 132. 1784.

62a var. americana Fern., Rhodora 44:3-4. 1942.

ROOTSTOCKS	Rhizomes extensively creeping, dark-brown; roots stramineous, smooth.
SHEATHS	Outer basal sheaths dark-brown; inner basal sheaths vinous; inner band vinous-tinged, strongly ladder-fibrillose with prominent transverse nerves, summit retuse; ligule longer than broad, acuminate.
LEAVES	Stiffly ascending, light green, 5.0-7.0 dm long, filiform-convolute to near sheath, serrulate on upper 1/2, septate-nodulose.
CULMS	Stiffly-erect, aphyllopodic, 0.5-1.0 m tall, sides 7-ribbed, angles obtuse, smooth, transverse section thin walled at base.
SPIKES	Terminal spike 1-3, staminate, the uppermost 2.0-7.0 cm long on short scabrous peduncle; the subtending laterals much smaller; median spike distant, androgynous or pistillate, capitate or ellipsoid, 0.8-1.5 cm long, sessile; lowermost spike remote, pistillate, ovoid or linear-cylindric, 1.0-3.0 cm long, sessile; bracts sheathing, the lowermost exceeding inflorescence, the upper reduced and setaceous or scale-like.
SCALES	Pistillate scales vinous to brown, with narrow hyaline margin, midrib green, slenderly trinervate, excurrent to short-awn or cuspidate, with serrulate margins and costa; blade equaling perigynium, rhomboidal. Staminate scales oblong-lanceolate, the obtuse summit with serrulate margins.
PERIGYNIA	Dark-brown, 3.0-4.5 mm long, ovoid-ellipsoid, trigonous, thick nerves concealed by griseous pilosity, base substipitate; beak short, emarginate with divergent teeth, 0.2-0.5 mm long.
ACHENE	Loosely enveloped by perigynium, dark-brown, puncticulate, obovoid-ellipsoid, trigonous, substipitate, apiculate; style articulate pale, vent, 1.0 mm long; stigmas 3, 1.5 mm long, brown.

62a var. Americana. Bracts sheathless, beak glabrous, less dense, griseous pilosity.

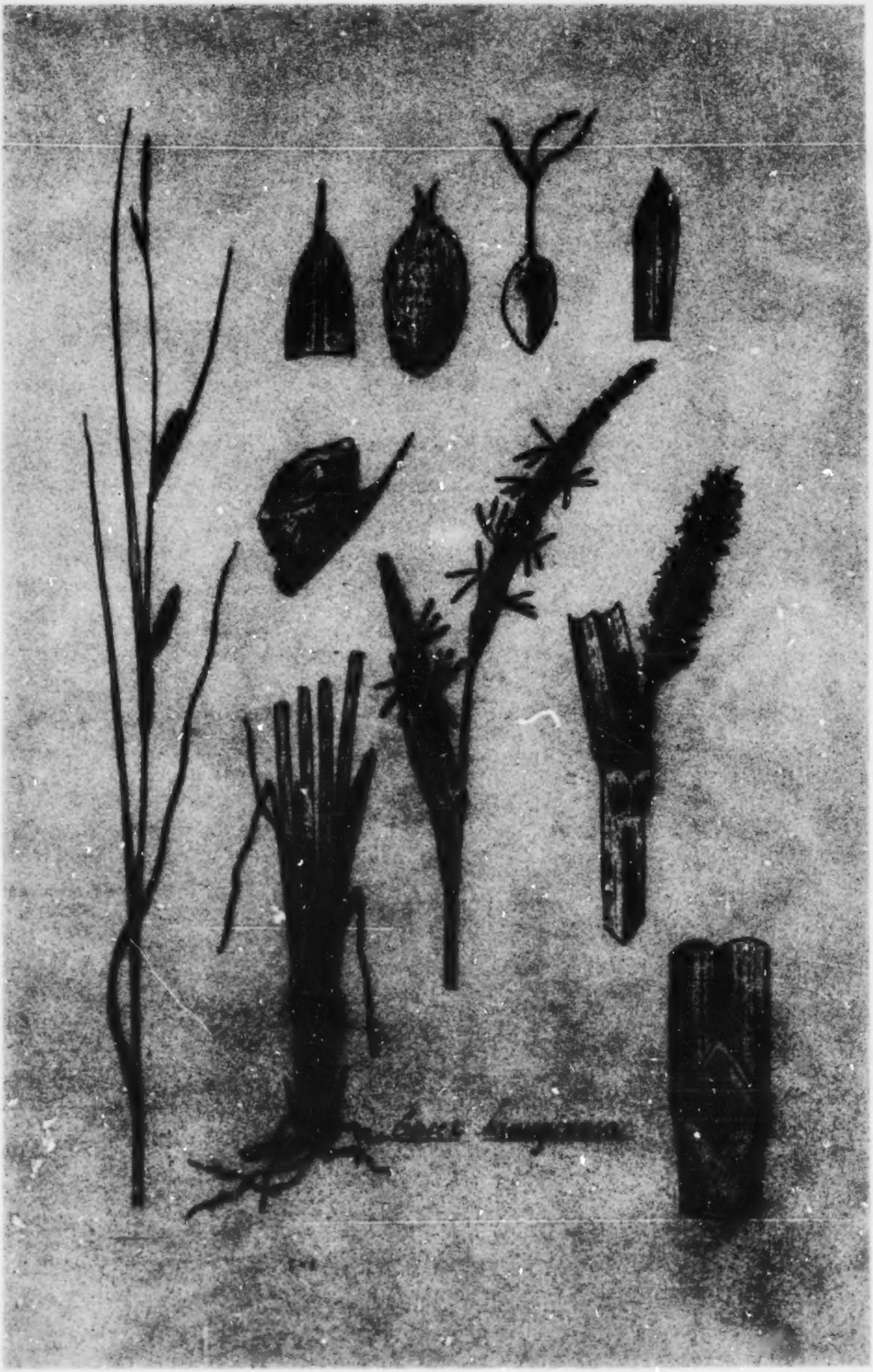
DISTRIBUTION	Circumpolar temperate-boreal.
HABITAT	Semi-aquatic plant around ponds on minerotrophic fens.
FORAGE VALUE	Very important forage plant for aquatic birds.
CHROMOSOME NUMBER	2n = 56.



Carex lasiocarpa

63. CAREX LANUGINOSA Michx., Fl. Bor. Am. 2:175. 1803.

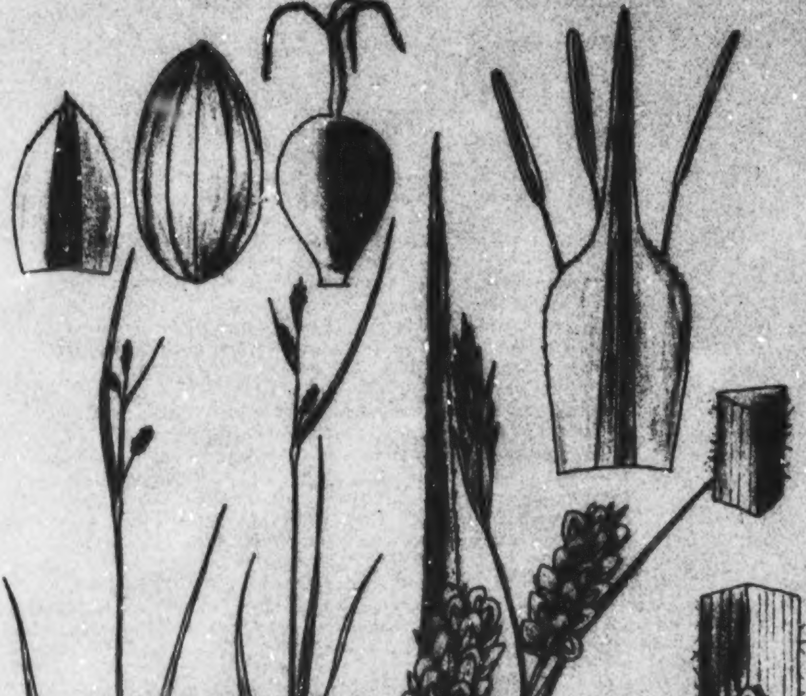
ROOTSTOCKS	Rhizomes extensively creeping, dark-brown, roots stramineous, smooth.
SHEATHS	Basal sheaths dark-brown; inner band vinous-tinged, strongly ladder fibrillose, summit prolonged, retuse; ligule longer than broad, acuminate.
LEAVES	Stiffly ascending, light-green, 5.0-7.0 dm long, 2.0-5.0 mm wide, flat, septate-nodulose, margins revolute, serrulate to sheath.
CULMS	Stiffly erect, aphyllopodic, 0.5-1.0 mm tall, sides 7-ribbed, angles obtuse, smooth, transverse section thin-walled at base.
SPIKES	Terminal spikes 1-3, staminate, the uppermost 2.0-7.0 cm long, short-peduncled; subtending laterals much shorter, approximate; median spikes 1-2, remote, androgynous or pistillate, thick linear-cylindric, 1.5-3.0 cm long, sessile; lowermost spike pistillate, thick linear-cylindric, 2.0-3.5 cm long, short-peduncled; bracts subtending pistillate spikes foliaceous, spathiform, the lowermost barely overtopping the terminal spike; terminal bracts reduced to short-setaceous or scale-like.
SCALES	Pistillate scales vinous, narrow hyaline-margined, midrib light green, broadly trinervate, excurrent to short awn, with serrulate margins and costa; blade shorter than perigynium, ovate. Staminate scales oblong-obovate, margins serrulate at summit, acuminate or cuspidate.
PERIGYNIA	Dark-brown, 2.5-4.0 mm long, 1.2-3.0 mm long, oblong-ellipsoid, plump, biconvex-trigonous, thick nerves concealed by griseous pilosity, base substipitate; beak short, strongly emarginate with divergent teeth.
ACHENE	Loosely enveloped by perigynium, dark-brown, obovoid, trigonous, substipitate, apiculate; style articulate, pale, 1.0 mm long; stigmas 3, 1.5 mm long, brown.
DISTRIBUTION	Temperate-boreal.
HABITAT	Rare, eutrophic fens and base-rich soils along river banks in sheltered valleys.
FORAGE VALUE	Insignificant.


Carex

VIRESCENTES Kunth, Enum. Pl. 2:429. 1837.

64. CAREX PALLESCENS L., Sp. Pl.1:977. 1753.

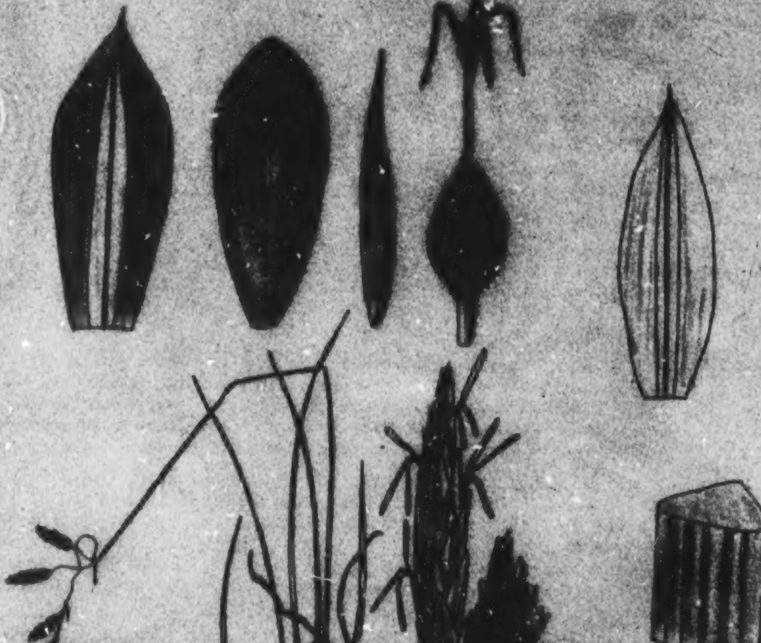
ROOTSTOCKS	Stolons, short; roots dark-brown, dense.
SHEATHS	Basal sheaths brown; inner band hyaline, summit retuse and ciliate; ligule longer than broad.
LEAVES	Erect to ascending-recurved, pale-green, 0.5-1.0 dm long, 2.0-5.0 mm wide, membranaceous, flat to plicate, piloseglandulose dorsally, margins ciliate, apex short-attenuate.
CULMS	Cespitose, erect, phyllopodic with 4-5 leaves at base, 1.0-6.0 dm tall, exceeding leaves, sides sparsely piloseglandulose, finely ribbed, angles piloseciliate, acute, transverse section with small central cavity, the vascular bundles prominent in ribs.
SPIKES	Terminal spike staminate erect, 1.0-2.0 cm long, linear-cylindric with clavate base, stipitate to short-peduncled; lowermost bract short-sheathing, foliaceous, margins undulate, exceeding inflorescence, upper bracts reduced, setaceous, auricles green.
SCALES	Pistillate scales hyaline or brown-tinged, midrib darker, green, broadly trinervate, costa excurrent to cuspidate tip, shorter or equaling perigynium, ovate, obtuse or abruptly acuminate, margins minutely serrulate on upper 1/4. Staminate scales frequently short-awned and obovate.
PERIGYNIA	Dense, fulvous, glabrous, 2.0-3.0 mm long, oblong-ellipsoid, biconvex, nerved; beakless.
ACHENE	Loosely enveloped by perigynium, light-brown, obovoid, trigonous, substipitate, apiculate; style articulate blackish, 0.5-0.75 mm long, stigmas 3, reddish brown, 1.0 mm long.
DISTRIBUTION	Temperate-boreal, amphiatlantic.
HABITAT	Dry base-rich soils in Rubus balsam fir and balsam fir-white birch forests and mountain maple thickets; occasionall at edge of alder swamps with slight hemerophilic tendencies on dry sites.
FORAGE VALUE	Insignificant.
CHROMOSOME NUMBER	2n = 64.


Carex pallescens

FERRUGINEAE Tuckerm., Enum. Caric. 12. 1843.

65. CAREX PETRICOSA var. misandroides (Fern.) Boivin, Nat. Can. 75:203. 1948.

ROOTSTOCKS	Rhizomes hard and scaly.
SHEATHS	Basal sheaths brown; inner band hyaline or brown-tinged, summit truncate; ligule much broader than long, obtuse.
LEAVES	Marcescent and fresh leaves matted at base, whitish or greyish-green, principal leaves curving, wiry, 0.5-2.5 dm long, conduplicate, margins scabrous to sheath.
CULMS	Erect, phyllopodic with 4-5 basal leaves, 0.5-4.5 dm tall, exceeding leaves, sides 4-ribbed, angles obtuse, smooth, transverse section solid.
SPIKES	Terminal spike staminate, erect, 0.5-3 cm long, linear-lanceolate, with clavate base on a capillary peduncle; lateral spike 1-7, approximate at summit or scattered and were basal, pistillate or androgynous, 0.5-3.0 cm long, ovoid to lance-ellipsoid, usually all on capillary arching peduncles or the upper sessile; bracts scale-like, setaceous with serrulate margins, auricles brown-purple.
SCALES	Pistillate scales brown to purple, midrib paler, green, broadly trinervate, costa, slightly excurrent; about equaling perigynium,obovate, acuminate. Staminate scales paler, ellipsoid, acuminate.
PERIGYNIA	Brown below, dark purple above, lustrous, 5.0-6.0 mm long, obovoid, narrowly biconvex or slightly trigonous, nerveless, margins serrulate on upper 1/2; beakless.
ACHENE	Loosely enveloped by perigynium, blackish, ovoid-elliptic, trigonous, ventral margins serrulate at summit, stipitate the stipe fulvous; apiculate; style articulate, fulvous, piloseglandulose, 1.5 mm long; stigmas 2, rarely 3, reddish-brown, 2.0 mm long.
DISTRIBUTION	Boreal, eastern North America.
HABITAT	Rare, calcareous coastal barrens in western Newfoundland.
FORAGE VALUE	Insignificant.



Carex petricosa var. misandroides

GRACILLIMAE Carey, Gray's Man. 552. 1848.

66. CAREX GRACILLIMA Schw., Ann. Lyc. N.Y. 1:66. 1824.

66a var. *macerrima* Fern. & Wieg., Rhodora 15:133. 1913.

ROOTSTOCKS Rhizomes short; stolons forming loose tussocks; roots dark-brown.

SHEATHS Basal sheaths dark purple to vinous; upper sheaths frequently piloseglandulose, brown-tinged, brown-puncticulate, slightly fibrillose, summit prolonged and truncate; ligule longer than broad.

LEAVES Marcescent leaves numerous; principal leaves from sterile culms, dark green glabrous 1.0-9.0 dm long, 4.0-9.0 mm wide, membranaceous glabrous or sparsely piloseglandulose dorsally near leaf sheath, margins and keel serrulate at summit.

CULMS Diffuse or erect, aphyllopodic with 3-5 leaves on lower 1/2, 0.2-1.0 m tall, side 4-ribbed below, with prominent median rib near summit, angles obtuse and smooth below, serrulate above, transverse section triangular and solid near sheath, quadrangular with white spongy centre, marginal vascular bundles between ribs.

SPIKES Terminal spike gynaecandrous, or rarely staminate, 2.0-6.0 cm long, 2.0-2.5 mm wide, slenderly linear, peduncled; lateral spikes 2-4, at summit approximate, the lowermost remote, spreading-ascending 1.0-6.0 cm long, 2.0-3.0 mm wide, slenderly linear, loosely or approximately flowered near base, on arching peduncles; lowermost bract erect, tubular sheathing, foliaceous, serrulate-margined on upper 1/2, upper bracts reduced.

SCALES Pistillate scales hyaline or fulvous, midrib green, broadly trinervate reaching to near summit, costa minutely serrulate dorsally and sometimes excurrent; blade 1/2 as long as perigynium, obovate, obtuse or abruptly acuminate. Staminate scales larger.

PERIGYNIA Fulvous or brown, 2.4-3.7 mm long, obovoid-ellipsoid, trigonous, nerved, obtuse, substipitate; beakless.

ACHENE Loosely enveloped by perigynium fulvous, ovoid, trigonous, substipitate, apiculate; style articulate, 0.5 mm long; stigmas 3, reddish-brown, 1.0 mm long.

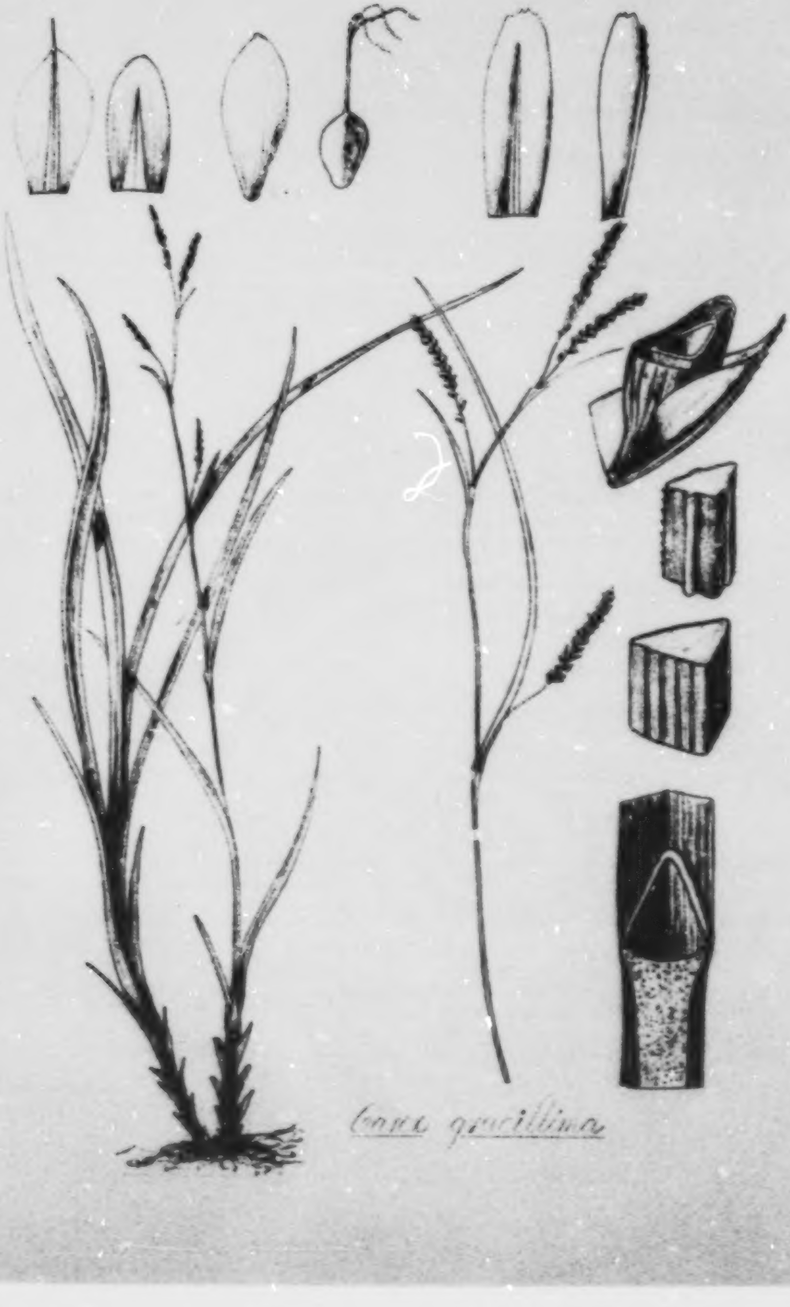
66a var. *macerrima*. Culms 3.0-5.0 dm tall, leaves 3.0-5.0 mm wide; spikes 1.0-3.0 cm long; perigynia 2.0-2.5 mm long, subapproximate.

DISTRIBUTION Temperate-boreal, eastern North America.

HABITAT Rubus-balsam fir and balsam fir-white birch forests, mountain maple thickets and dry hummocks in alder swamps.

FORAGE VALUE Reasonably good seed source for small birds.

CHROMOSOME NUMBER 2n = 50, 52, 54.

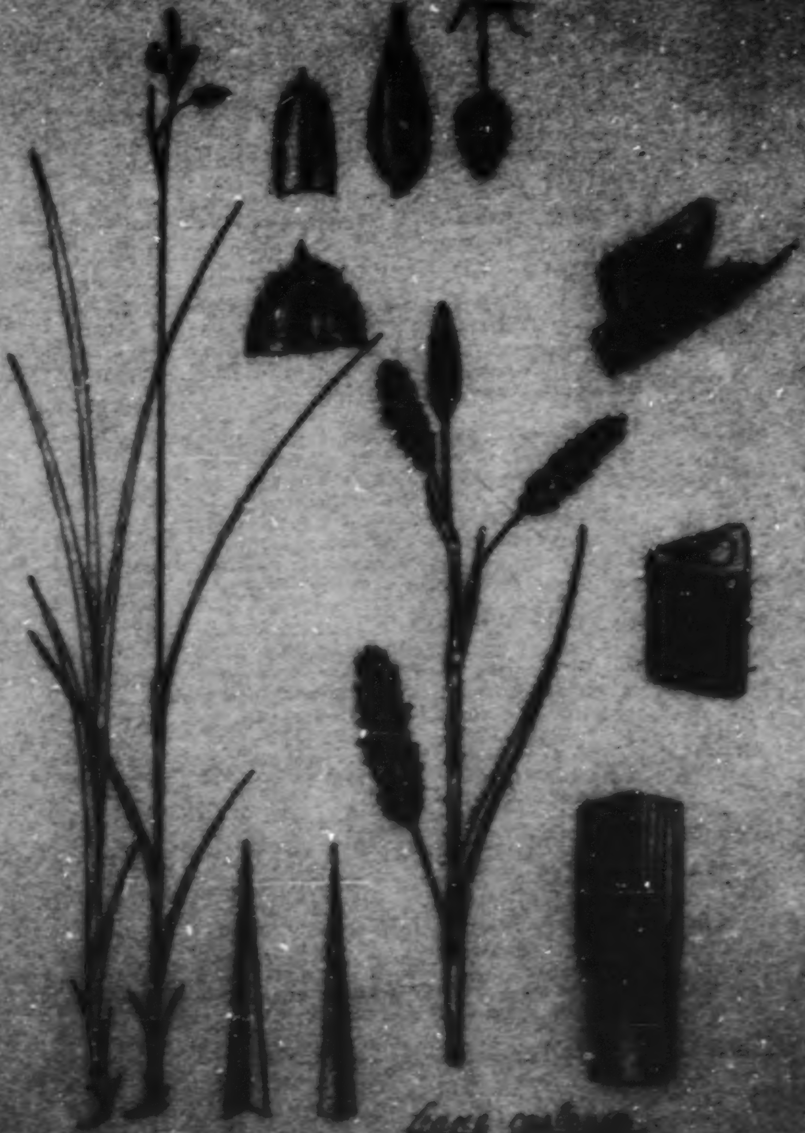


Carex gracillima

SYLVATICAE Boott, in Tuckerm. Enum. Caric. 12. 1843.

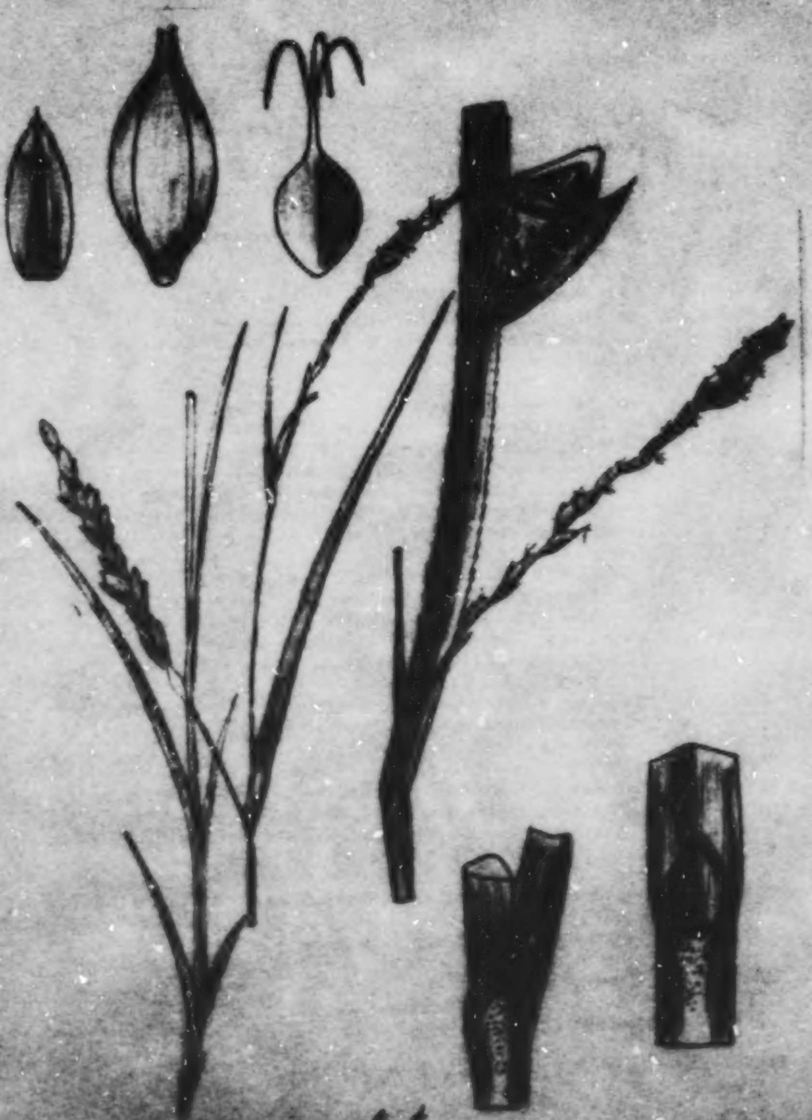
67. CAREX CASTANEA Wahl., Sv. Vet.-Akad. Nya Handl. 24:155. 1803.
(Not Elliot, 1826.)

ROOTSTOCKS	Stolons short; roots light brown, elongate.
SHEATHS	Basal sheaths vinous, pilose; inner band fulvous-tinged, veined, pilose, summit concave; ligule much longer than broad.
LEAVES	Marcescent leaves numerous, fresh leaves ascending, firm, dark green, 0.1-5.0 dm long, 4.0-9.0 mm wide, plicate to conduplicate, prominently keeled ventrally, margins smooth or pilosecilliate, pilose ventrally and near sheath dorsally, short attenuate at apex.
CULMS	Erect or curving, usually aphyllopodic with 3-4 short and amplexicaul leaves on lower 1/2 or near base, 0.1-1.0 m tall, exceeding leaves, slender, sides prominently 3-ribbed, sparsely pilose, angles obtuse, pilosecilliate, transverse section with large central cavity.
SPIKES	Terminal spike staminate or rarely gynaecandrous, 1.0-3.0 cm long, clavate-ellipsoid to linear-cylindric, sessile or stipitate; lateral spikes 2-5, pistillate, at summit approximate the lowermost remote, 2.0-6.0 mm long, linear-cylindric to ellipsoid, on cernuous peduncles; lowermost bracts long sheathing, foliaceous, pilosecilliate, upper bracts reduced to scale-like, auricles fulvous.
SCALES	Pistillate scales hyaline to stramineous midrib darker, narrowly trinervate, costa excurrent, pilose dorsally at summit; shorter than perigynium, ovate, obtuse, pilosecilliate on upper 1/2. Staminate scales paler, lance-ovate.
PERIGYNIA	Fulvous, 2.5-3.0 mm long, ellipsoid, slightly trigonous, margins elevated ventrally, body nerved to beak, substipitate; beak 1.0-1.5 mm long, emarginate, the suture hyaline.
ACHENE	Loosely enveloped by perigynium, fulvous, obovoid, trigonous, substipitate, apiculate; style articulate, 1.5-2.0 mm long, stigmas 3, reddish-brown, 2.0 mm long.
DISTRIBUTION	Boreal, eastern North America.
HABITAT	Balsam fir-white birch forests and dry gravelly banks of rivers in sheltered valleys.
FORAGE VALUE	Reasonably good seed source for small birds.


Carex [illegible]

68. CAREX ARCTATA Boott, in Hooker, Fl. Bor. Am. 2:227. 1840.

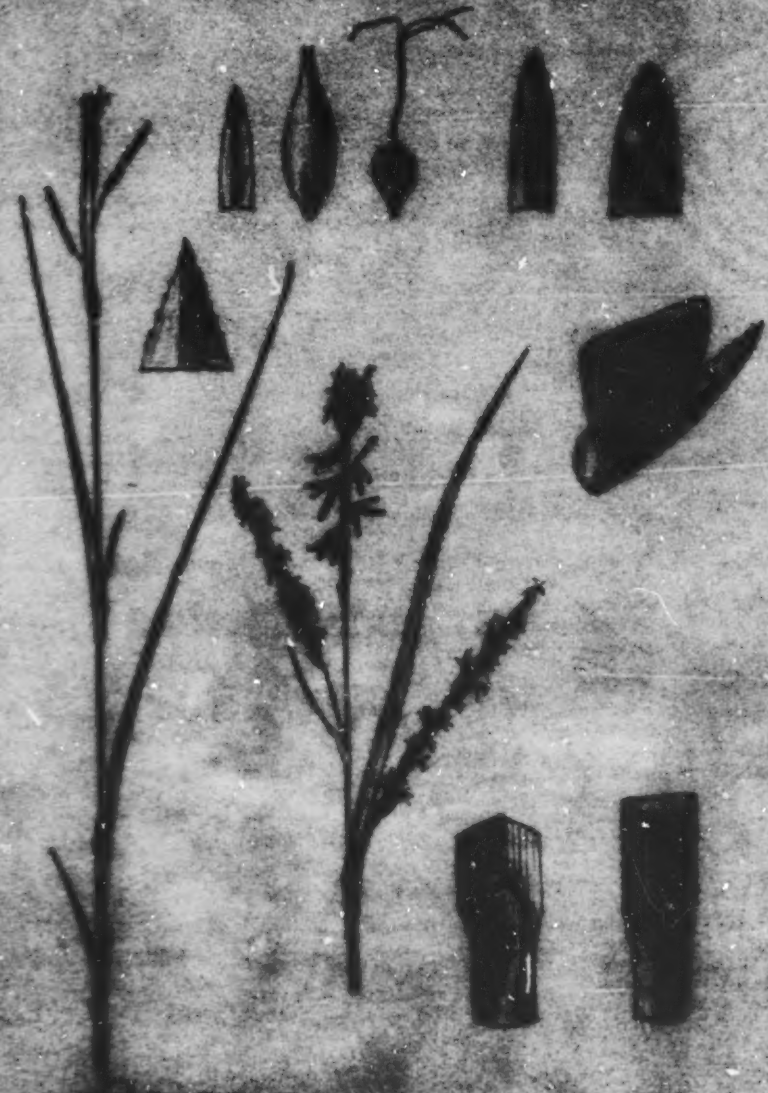
ROOTSTOCKS	Rhizomes and stolons short; roots dense, dark-brown, smooth.
SHEATHS	Basal sheaths vinous, lustrous, glabrous; inner band fulvous-tinged, brown-puncticulate, prolonged and concave summit; ligule as broad as long.
LEAVES	Marcescent leaves numerous, fresh leaves, ascending, dark-green lustrous, 1.0-3.0 dm long, 0.6-1.0 cm wide, flat to conduplicate, strongly keeled, margins serrulate to smooth.
CULMS	Ascending-arching, aphyllopodic with 3-4 short leaves on lower 1/4, 0.2-1.0 m tall, exceeding leaves, sides 4-ribbed, angles obtuse smooth, transverse section quadrangular at summit and solid, marginal vascular bundles between ribs.
SPIKES	Terminal spike staminate, or rarely gynaecandrous with a few pistillate flowers at summit, 1.0-3.0 cm long, slender, linear-cylindric, sessile or short-peduncled; lateral spikes 3-5, pistillate, approximate or the lower remote, diffuse or cernuous, 2.0-6.0 cm long, slender, linear-cylindric, on filiform peduncles, loosely flowered; lowermost bract long-sheathing, foliaceous, upper reduced, setaceous, auricles stramineous.
SCALES	Pistillate scales hyaline to stramineous, midrib darker, greenish, brown, broadly trinervate, costa excurrent to cusp or short-awn and serrulate dorsally, shorter than perigynium, acuminate, margin serrulate on upper 1/2; staminate scales paler and larger.
PERIGYNIUM	Fulvous, 3.0-5.0 mm long, ellipsoid, trigonous, finely nerved, substipitate; beak 1.5 mm long, emarginate, suture hyaline.
ACHENE	Loosely enveloped by perigynium, fulvous, obovate, trigonous, substipitate, apiculate; style articulate, blackish, 1.0 mm long, stigmas 3, reddish-brown, 1.5-3.0 mm long.
DISTRIBUTION	Boreal, eastern North America.
HABITAT	Rubus-balsam fir and balsam fir-white birch forests, mountain maple thickets and dry hummocks in alder swamps. Slightly hemerophilic in disturbed forests.
FORAGE VALUE	A good seed source for small birds.



Carex arctata

69. CAREX DEBILIS var. rudgei Bailey, Mem. Torrey Bot. Club. 1:34. 1889.

ROOTSTOCKS	Rhizomes and stolons short; roots dark-brown, smooth.
SHEATHS	Basal sheaths vinous; inner band fulvous-tinged, green nerved, piloseglandulose, summit retuse; ligule longer than broad.
LEAVES	Ascending, firm, dark-green, 1.0-2.5 dm long, 2.0-7.0 mm wide, flat to conduplicate, pilose ventrally near sheath, margins scabrous to sheath, keel prominent and serrulate ventrally at summit.
CULM	Cespitose, lax, aphyllopodic with 4-5 leaves, 0.2-1.0 m tall, shorter than leaves, slender, sides finely-ribbed, angles acuminate and serrulate to sheath, transverse section solid, vascular bundles inconspicuous.
SPIKES	Terminal spike gynaecandrous, (pistillate tipped), 2.0-3.0 cm long, staminate portion very slender, linear-cylindric, sessile, lateral spikes 2-5 pistillate,diffuse or ascending, at summit approximate, 2.0-4.0 cm long, slender, linear-cylindric, long peduncled; lowermost bract long-sheathing, foliaceous, exceeding inflorescence; upper reduced, setaceous, auricles stramineous.
SCALES	Pistillate scales stramineous, margins hyaline and piloseciliate, midrib green, broadly trinervate, costa serrulate dorsally, and slightly excurrent; shorter than perigynium, lance-ovate, acuminate. Staminate scales paler and larger, obtuse, costa barely reaching summit.
PERIGYNIA	Fulvous, 4.0-9.0 mm long, lanceolate-ovoid, subinflated-biconvex, finely short-nerved at base, substipitate, beak short, emarginate, suture hyaline.
ACHENE	Loosely enveloped by perigynium, fulvous, obovoid-ellipsoid, trigonous, stipitate, apiculate; style articulate, 2.0 mm long, dark-brown; stigmas 3, reddish-brown, 2.5 mm long, slender.
DISTRIBUTION	Temperate-boreal, eastern North America.
HABITAT	Essentially an hemerophilic species in same disturbed communities as C. arctata, but more tolerant of wetter sites.
FORAGE VALUE	Slightly better seed source for small birds.



Carex [illegible] [illegible]

CAPILLARES A. & G., Syn. Mitteleur. Fl. 2:153. 1902.

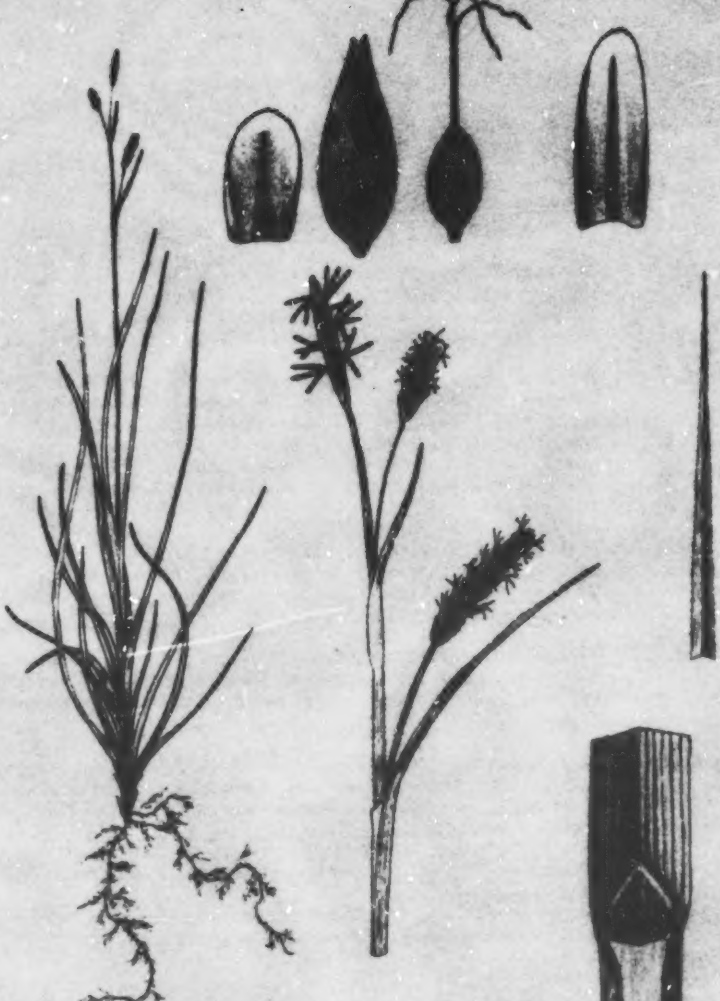
70. CAREX CAPILLARIS L., Sp. Pl. 1:977. 1753.

70a var. major Drejer, Nat. Tidssk. 3:472. 1841.

ROOTSTOCKS	Stolons short; roots dense, light-brown.
SHEATHS	Basal sheaths dull-brown; upper sheath tubular, the inner band fulvous, truncate at summit; ligule as broad as long.
LEAVES	Mostly basal, forming dense tussocks, ascending or recurved, 2.0-9.0 cm long, 0.3-2.0 mm wide, flat to involute, margins scabrous on upper 1/2.
CULMS	Erect to ascending, 0.2-3.0 dm tall, filiform; sides 3-ribbed; angles obtuse smooth to lowest spike, serrulate above; transverse section quadrangular at summit, central cavity small, vascular bundles prominent.
SPIKES	Inflorescence racemose-corymbiform, 1.0-6.0 cm long, terminal 1-2 spikes staminate or frequently gynaecandrous with few pistillate flowers, 0.5-1.0 mm long, slender, linear-cylindric long-peduncled, 5-10 flowered; lowermost bract sheathing, foliaceous, much shorter than inflorescence, upper bracts reduced, setaceous or scale-like.
SCALES	Pistillate scales stramineous, midrib darker, green, trinervat reaching to near summit; shorter than perigynium, ovoid, obtus margins ciliate at summit, caducous. Staminate scales paler a larger, oblong, obtuse.
PERIGYNIA	Fulvous, lustrous, 2.0-3.0 mm long, lanceolate-ovoid, biconvex or slightly trigonous, margins elevated ventrally; beak taperi from body, bidentate.
ACHENE	Loosely enveloped by perigynium olivaceous, ovoid-ellipsoid, trigonous, substipitate, apiculate; style articulate, 0.5-0.7 mm long; stigmas 3, reddish-brown, 1.0 mm long, slender.

Var. major. Tussocks loose, 2.0-6.0 dm tall, basal leaves 1.5-4.0 mm wide; inflorescence 0.6-2.0 dm long; pistillate spikes up to 20-flowered, 0.7-1.7 mm long; perigynia 2.0-3.5 mm long.

DISTRIBUTION	Circumpolar boreal, rather disjunct in central Eurasia.
HABITAT	Edge of eutrophic fens, calcareous coastal barrens and base-rich soils on shores of rivers and ponds; var. major occurs most frequently in alder thickets and mountain maple thickets in sheltered valleys.
FORAGE VALUE	Reasonable seed source for small birds.
CHROMOSOME NUMBER	2n = 54.



Carex capillaris

1·1

GRANULARES O.F. Lang., Linnaea 24:582. 1851.

71. CAREX CRAWEI Dewey, Am. J. Sci. II. 2:246. 1846.

ROOTSTOCKS Rhizomes monopodial, creeping, fulvous, scaly; roots light-brown, elongate, slender.

SHEATHS Basal sheaths dark-brown; inner band hyaline, summit truncate; ligule broader than long.

LEAVES Stiffly ascending-divergent, somewhat basal, glaucous-green, principal leaves 0.5-3.0 dm long, 1.0-3.0 mm wide, plicate, serrulate on upper 1/3.

CULMS Solitary-2, loosely cespitose from small tufts, phyllopodic, 0.5-3.0 dm tall, usually exceeded by leaves, sides 2-3 ribbed, angles obtuse, smooth below inflorescence.

SPIKES Terminal spike staminate, 1.0-2.0 cm long, slenderly clavate, to linear-cylindric, long-peduncled; lateral spikes 2-4, distant the lowermost sub-basal and short-peduncled, 1.0-2.0 cm long, short linear-cylindric; bracts subtending lateral spikes foliaceous, sheathing, the lowermost reaching to terminal spike, terminal bract scale-like.

SCALES Pistillate scales brown, with hyaline margin, midrib pale-green, trinervate, costa slightly excurrent; blade shorter than perigynium, ovate, acuminate. Staminate scales larger, obovate.

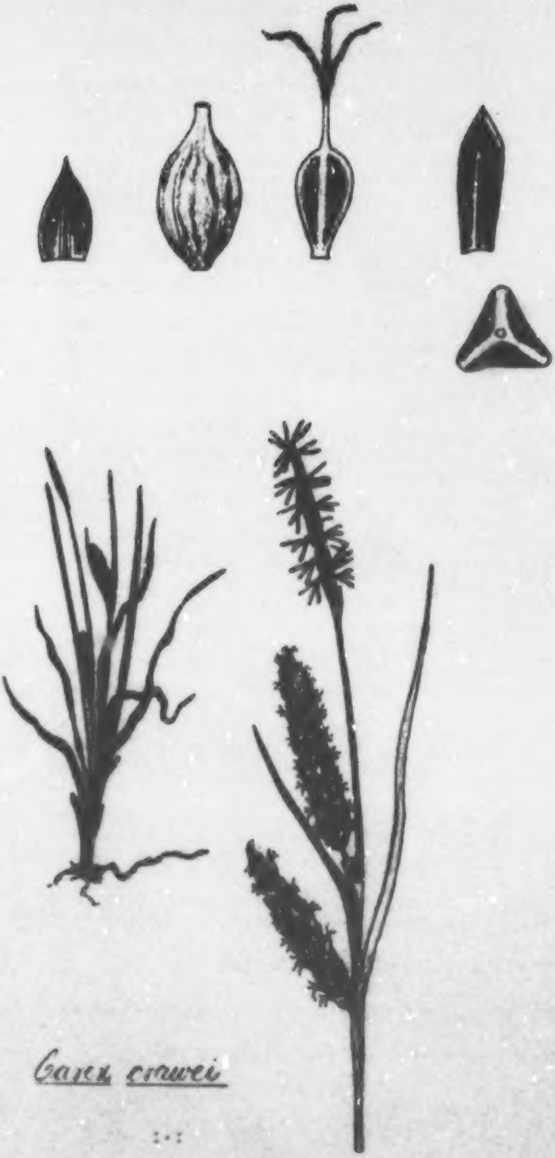
PERIGYNIA Stramineous or fulvous, 2.5-3.5 mm long, resin-dotted, ovoid, trigonous, obscurely to strongly nerved, substipitate and spongy at base, abruptly beaked; beak minute, hyaline, terete.

ACHENE Closely enveloped by perigynium, brown with paler angles, compressed-trigonous, obovoid, substipitate, apiculate; style pale, 0.5 mm long, articulate; stigmas 3, reddish-brown, 2.0 mm long.

DISTRIBUTION Temperate-boreal, transcontinental North America.

HABITAT Base-rich soils along riverbank; known only from Cow Head, western Newfoundland.

FORAGE VALUE Insignificant.



Carex crawei

OLIGOCARPAE Carey, in A. Gray, Man. Bot., 554. 1848.

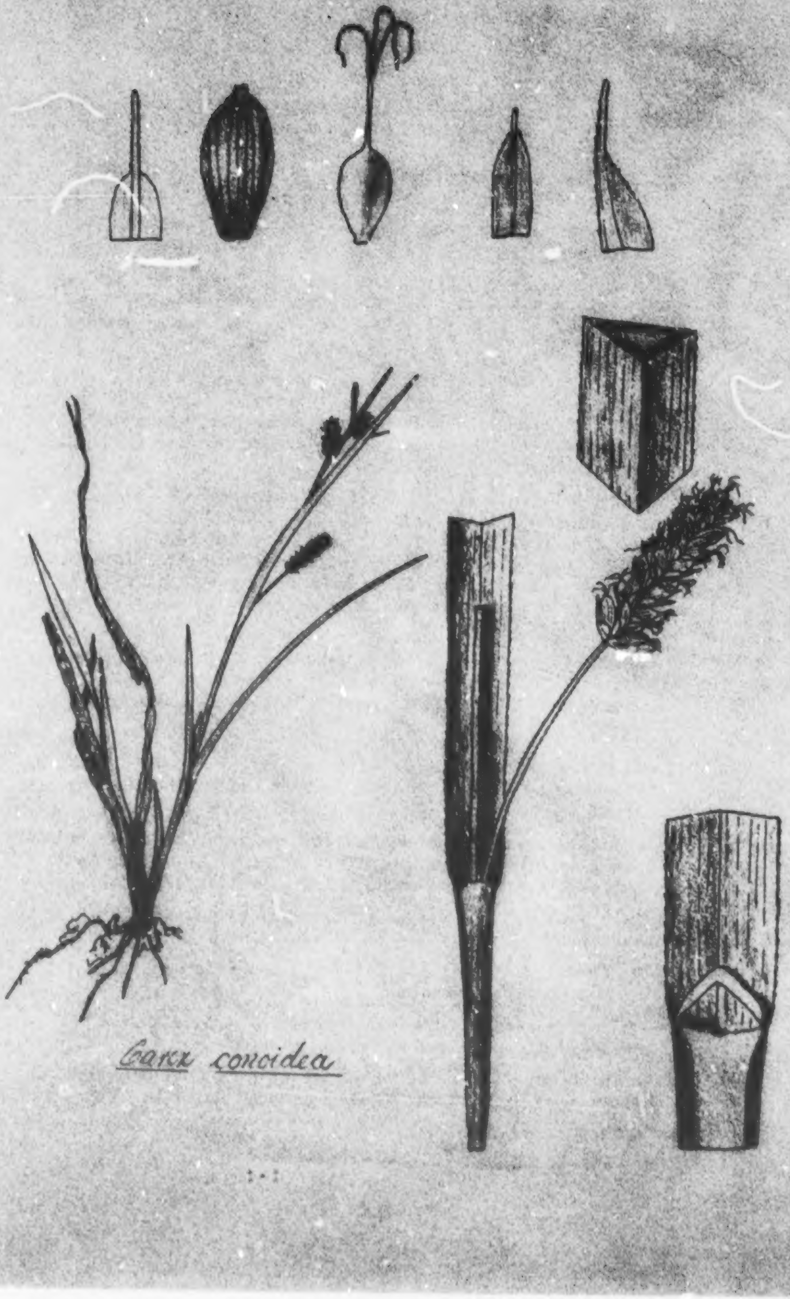
72. CAREX CONOIDEA Schk., in Willd., Sp. Pl. 4:280. 1805.

72a forma *katahdinensis* (Fern.) Boivin, Nat. Can. 75:204. 1948.

ROOTSTOCKS	Rhizomes and stolons lacking; roots 1.0 mm thick, light-brown, smooth.
SHEATHS	Basal sheaths light brown to fulvous; inner band hyaline, summit truncate and somewhat crenulate, ligule as broad as long.
LEAVES	Ascending, light-green to stramineous, 0.5-5.0 dm long, 1.0-5.0 mm wide, flat, margins serrulate to sheath.
CULMS	Loosely to densely cespitose, erect or ascending, aphyllopodic, 1.0-7.0 dm tall, slender, sides finely-ribbed, angles acute, serrulate, transverse section solid with prominent vascular bundles.
SPIKES	Terminal spike staminate, 1.0-2.0 cm long, linear cylindric, 1.0-3.0 cm long-peduncled; lateral spikes 2-4, pistillate, the upper approximate or distant, sessile to short peduncled, the lower remote, long-peduncled, peduncles capillary and serrulate; uppermost pistillate spike sometimes overtopping terminal spike; bracts foliaceous, the lowermost barely exceeding inflorescence, the uppermost lateral bract short-setaceous.
SCALES	Pistillate scales stramineous, midrib pale green, broadly trinervate, costa excurrent to short-awn and serrulate on margins and dorsally; blade shorter than perigynium, ovate; blade of staminate scales larger, the awn reduced to a cusp.
PERIGYNIA	Fulvous, lustrous, 2.5-3.8 mm long, obovoid-ellipsoid, trigonous, impressed-nerved; beak minute to inconspicuous, terete.
ACHENE	Loosely enveloped by perigynium, pale-green, obovoid, trigonous, substipitate; style 0.5-2.0 mm long, paler; stigmas 3, reddish-brown, 2.0-2.5 mm long.

forma *katahdinensis*. Peduncles of staminate spike 0.5-1.0 cm long; pistillate spikes approximate; lowermost bract considerably exceeding inflorescence.

DISTRIBUTION	Boreal, eastern North America.
HABITAT	Rare, hemerophilic species of moist grassy meadows.
FORAGE VALUE	Insignificant due to its rareness.



Carex conoidea

PANICEAE Tuckerm., Enum. Caric. 15. 1843.

73. CAREX LIVIDA Willd., Sp. Pl. 4:258. 1805.

73a var. *grayana* (Dewey) Fern., Rhodora 28:8. 1926.

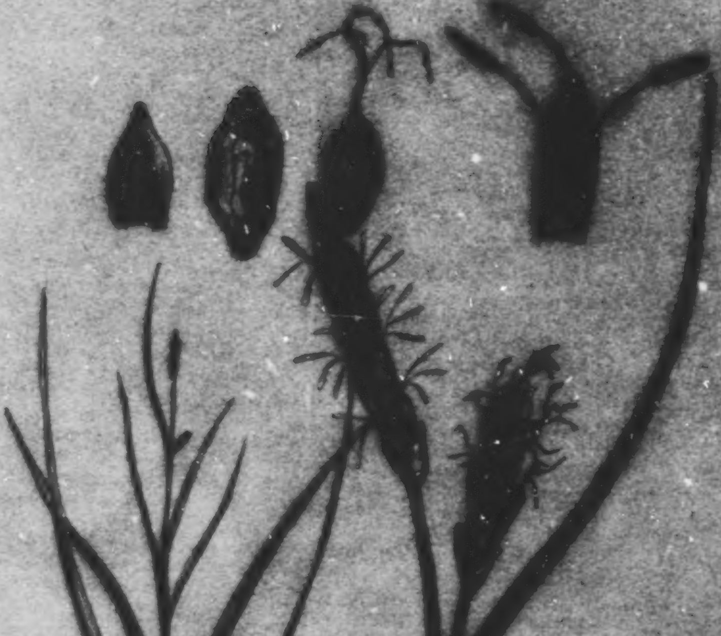
73b var. *rufinaeformis* Fern., Rhodora 28:7-8. 1926.

ROOTSTOCKS	Rhizomes sympodial, creeping, yellow, slender, with marcescent brown scales; loosely stoloniferous.
SHEATHS	Basal sheaths fulvous to brown; inner band hyaline, retuse to concave at summit; ligule longer than broad.
LEAVES	Ascending, soft, glaucous, principal leaves on sterile culms, 0.5-5.0 dm long, exceeding inflorescence, 3.0-5.0 mm wide, plicate to flat, 7-ribbed, margins serrulate on upper 1/4.
CULMS	Fertile culms solitary or few from a single stolon, phyllopodic with 3 leaves on lower 1/2, 0.5-3.0 dm tall, sides 3-ribbed, angles obtuse and smooth, transverse section with large central cavity and prominent vascular bundles.
SPIKES	Terminal staminate, 0.5-2.5 cm long, slender, linear-cylindric or linear-elliptic with clavate base, sessile; lateral spikes 1-3, pistillate 5-15 flowered, approximate, 0.5-2.0 cm long, ovate-elliptic, stiped or the lower short-peduncled; lowermost bract tubular-sheathing, foliaceous, usually exceeding inflorescence, upper reduced, setaceous or scale-like.
SCALES	Pistillate scales brown to vinous, with broad hyaline margins, midrib, green, broadly trinervate, equaling perigynium, ovate, acuminate. Staminate scales usually darker and larger.
PERIGYNIA	Glaucous, granulose, 2.0-5.0 mm long, rhomboid-ellipsoid to oblong-ovoid; biconvex, nerved; beak minute, with truncate and entire orifice.
ACHENE	Closely enveloped by perigynium, fulvous, obovoid, trigonous, substipitate, apiculate; style articulate, 0.5 mm long; stigmas 3, reddish-brown, 1.5-2.0 mm long, slender.

Var. *rufinaeformis*. Culms 0.5-1.5 dm tall, terminal spike pistillate or somewhat gynaecandrous.

DISTRIBUTION	Boreal, transcontinental North America, amphiatlantic and amphipacific.
HABITAT	Minerotrophic and eutrophic fens; occasionally in mesotrophic bogs and subalpine slope fens.
FORAGE VALUE	High nutritional value but apparently not extensively foraged by wildlife or domesticated animals.

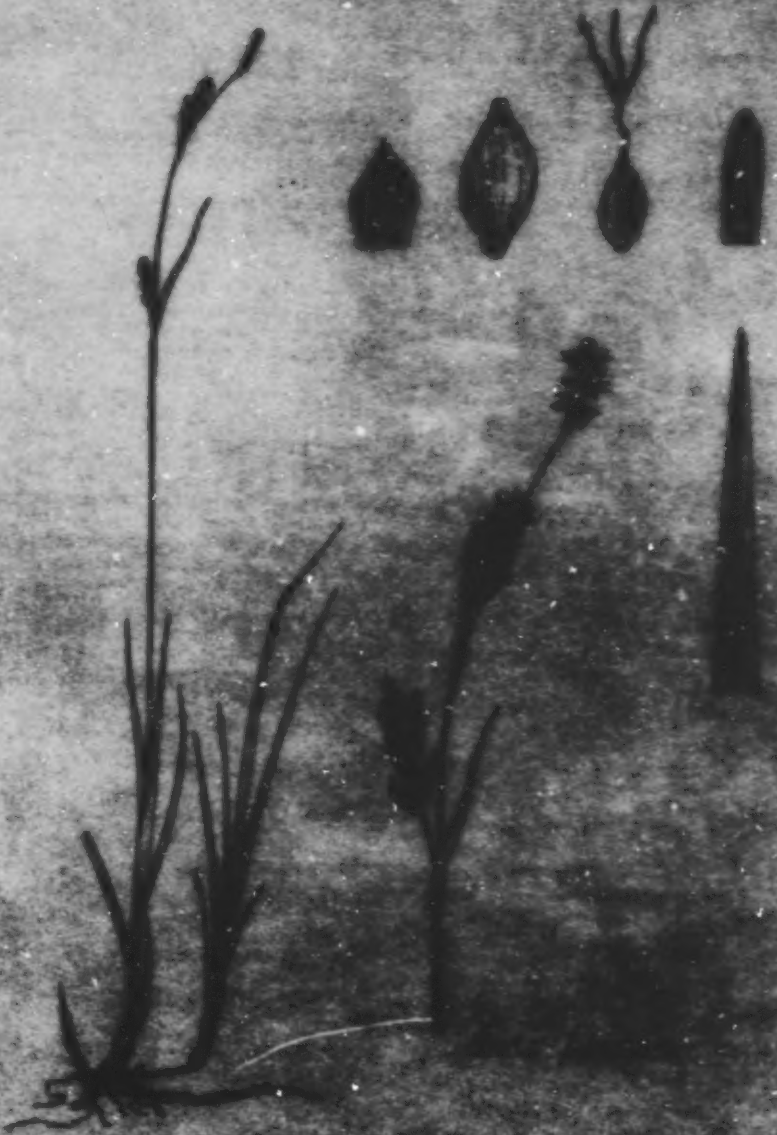
CHROMOSOME NUMBER $2n = 32$.



Carex livida

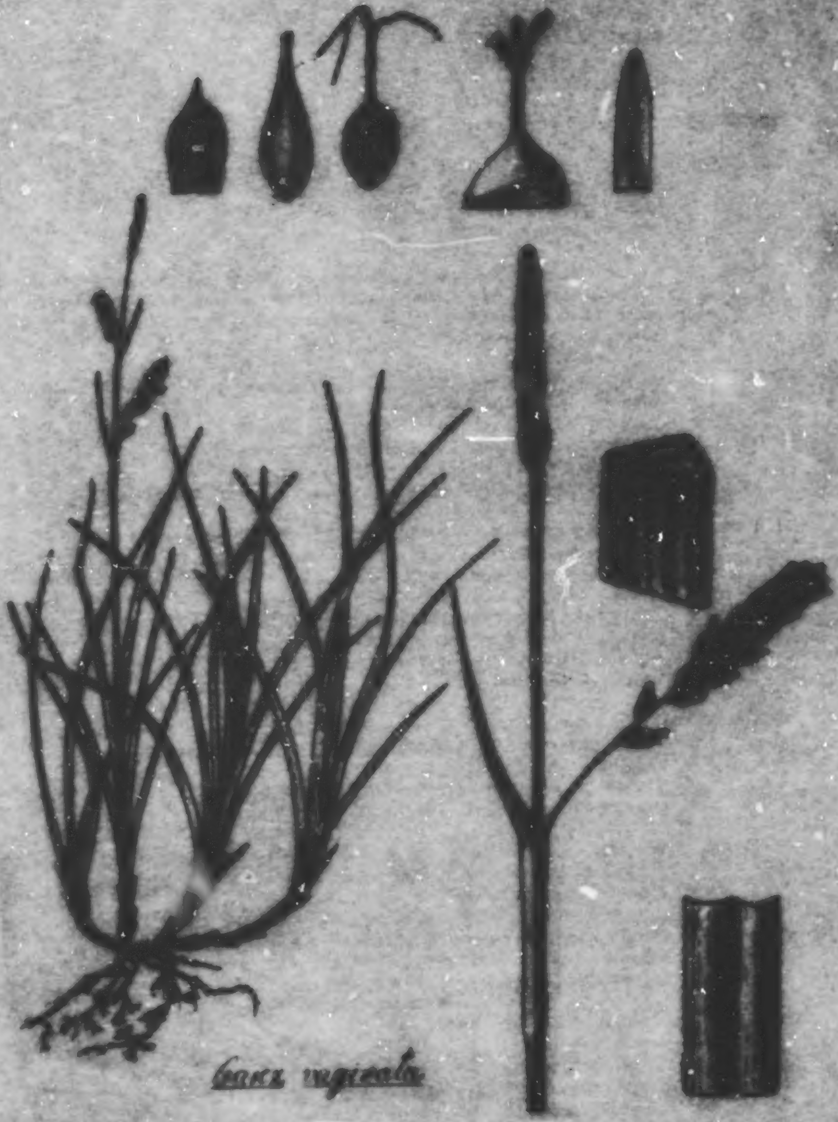
74. CAREX PANICEA L., Sp. Pl. 1:977. 1753.

ROOTSTOCKS	Rhizomes sympodial, creeping, brown, slender, with marcescent brown scales; loosely stoloniferous.
SHEATHS	Basal sheaths fulvous to dark-brown; inner band hyaline, retuse to concave at summit; ligule longer than broad.
LEAVES	Marcescent leaves numerous; principal leaves on sterile culms, 3-6 mostly basal, stiffly ascending, glaucous-green, 0.5-3.0 dm long, 2.0-5.0 mm wide, plicate to flat, serrulate on upper 1/5-1/4.
CULMS	Loosely cespitose, erect, aphyllopodic, with 5-7 short leaves on lower 1/4, 1.0-6.0 dm tall, considerably exceeding principal leaves, sides 3-ribbed, angles obtuse, smooth, transverse section with large central cavity and prominent vascular bundles.
SPIKES	Terminal spike staminate, 1.5-2.5 cm long, linear-cylindric, long-peduncled, lateral spikes 1-3, pistillate, distant, 1.5-2.0 cm long, loosely flowered, upper short-peduncled, lower long-peduncled; lowermost bract foliaceous, equaling or exceeding spike, shorter than inflorescence, uppermost lateral bract setaceous, spathiform, 1/2 as long as spike.
SCALES	Pistillate scales purplish, margins hyaline to light-brown, midrib pale green, trinervate, costa evanescent near summit, blade shorter than perigynium, broadly-ovate, acuminate. Staminate scale larger, narrower, obtuse.
PERIGYNIA	Stramineous to purple, glabrous, 3.0-4.0 mm long, fusiform-obovoid, turgid, nerved; beakless or obscurely beaked.
ACHENE	Loosely enveloped by perigynium, brown, ovate, trigonous, apiculate; style pale, 1.5 mm long, flexuous, articulate; stigmas 3.
DISTRIBUTION	Temperate-boreal, amphiatlantic and central Eurasia.
HABITAT	Introduced hemerophilic species of wet meadows.
FORAGE VALUE	Insignificant because of its rareness.
CHROMOSOME NUMBER	2n = 32.



75. CAREX VAGINATA Tausch., in Flora 4:557. 1821.

ROOTSTOCKS	Rhizomes sympodial, creeping, yellowish-white, slender, with marcescent fulvous scales; loosely stoloniferous.
SHEATHS	Basal sheaths fulvous or brown; lower-sheaths of fertile culms, inflated; inner band hyaline with green marginal nerves, retuse or truncate at summit; ligule evanescent.
LEAVES	Winter-green, flexuous, older leaves dark-green, younger leaves glaucous-green, 0.2-3.0 dm long, 1.5-2.5 mm wide, conduplicate, margins serrulate on upper 1/3.
CULMS	Erect to flexuous, aphyllopodic with 3-4 short amplexicaul leaves at base, 1.0-8.0 dm tall; sides strongly ribbed, angles obtuse and smooth, transverse section with large central cavity and prominent vascular bundles.
SPIKES	Terminal spike staminate, 1.0-2.0 cm long, slender linear-cylindric, sessile, lateral spikes 1-3, pistillate, diffuse or ascending, remote, or distant at summit, 1.5-2.5 cm long, linear-cylindric, loosely 3-20 flowered, long-peduncled; lower bracts long-tubular sheathing, foliaceous, shorter than spike, upper bracts reduced to scale-like and spathiform.
SCALES	Pistillate scales vinous, midrib green, obscurely trinervate with dark-brown and slightly excurrent costa; shorter than perigynium, obovate, abruptly acuminate. Staminate scales longer but narrower, lanceolate, acute.
PERIGYNIA	Fulvous, 3.0-5.0 mm long, ovoid-ellipsoid, biconvex or slightly trigonous, finely nerved, substipitate; beak 1.0 mm long, emarginate, suture hyaline.
ACHENE	Closely enveloped by perigynium, fulvous, obovoid, trigonous, apiculate; style articulate, 1.2 mm long, piloseglandulose; stigmas 3, reddish-brown, slender.
DISTRIBUTION	Circumpolar boreal.
HABITAT	Black spruce bog forests, mesotrophic bogs, minerotrophic fens and peaty soils along lakeshores. Becomes strongly hemerophilic on disturbed peaty soils, especially along new power transmission right-of-ways.
FORAGE VALUE	Moderate source of winter forage for wildlife.
CHROMOSOME NUMBER	2n = 32.

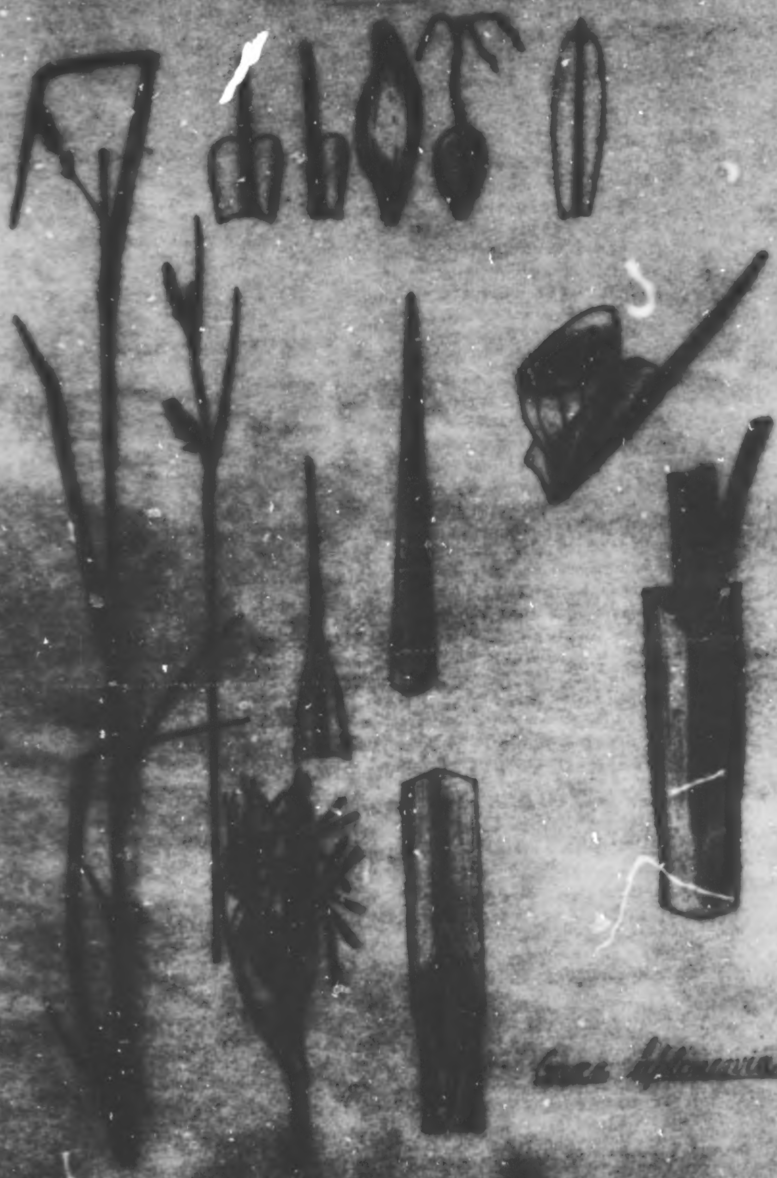


Carex vaginata

LAXIFLORAE Kunth, Enum. Pl. 2:452. 1837.

76. CAREX LEPTONERVIA (Fern.), Fern. Rhodora 16:214. 1914.

ROOTSTOCKS	Rhizomes and stolons short.
SHEATHS	Basal sheaths decomposing rapidly, brown; cauline sheath loose, trigonous with 1 serrulate angle on inner band; inner band firm, stramineous, retuse or torn; ligule evanescent.
LEAVES	Winter-green, flexuous, marcescent leaves numerous, young leaves dark-green, lustrous, 0.5-1.0 dm long, 4.0-7.0 mm wide flat margins retrorse-scabrous on lower 1/2, ascending-scabrous on upper 1/2.
CULMS	Cespitose from rosettes, aphyllopodic with 2-3 leaves on lower 1/2, lax and weak, variable from 1.0-3.0 dm tall, sides 4-ribbed, angles obtuse and smooth or retrorse-serrulate on lower 1/2, winged and smooth or ascending-serrulate on upper 1/2; transverse section with large central cavity, and prominent vascular bundles on ribs.
SPIKES	Terminal spike staminate, approximate or concealed by subterminal and lateral spikes; lateral spikes 2-4, pistillate, lower spikes remote, ascending, 1.0-3.0 cm long, 3.0-4.0 mm thick, linear-cylindric, 5-15 subdensely or alternately flowered, approximate spikes stipitate or short-peduncled, remote spikes long-peduncled; bracts long sheathing, foliaceous, about twice as long as spike, the upper lateral bracts exceeding culm.
SCALES	Pistillate scales hyaline, midrib green, broadly trinervate, costa excurrent to a cusp or short-awn and serrulate on margins and dorsally; blade shorter than perigynium, obovate, retuse; staminate longer and narrower, not short-awned, oblanceolate, obtuse.
PERIGYNIA	Fulvous, 2.5-4.0 mm long, 1.0-1.5 mm wide, fusiform-obovoid, biconvex, nerved, substipitate; beak straight or bent, 1.0 mm long, terete.
ACHENE	Closely enveloped by perigynium, fulvous, ellipsoid, trigonous, substipitate apiculate; style articulate, flexuous, 1.0 mm long, stigmas 3, reddish-brown, 2.0 mm long.
DISTRIBUTION	Boreal, eastern North America.
HABITAT	Black spruce bog forests, balsam fir tuckamore; less frequently in alder swamps, Rubus-balsam fir forests and mountain maple thickets. Has slight hemerophilic tendencies.
FORAGE VALUE	Reasonable seed source for forest birds.



Carex [illegible]

EXTENSAE Fries, Fl. Scan. 188. 1835.

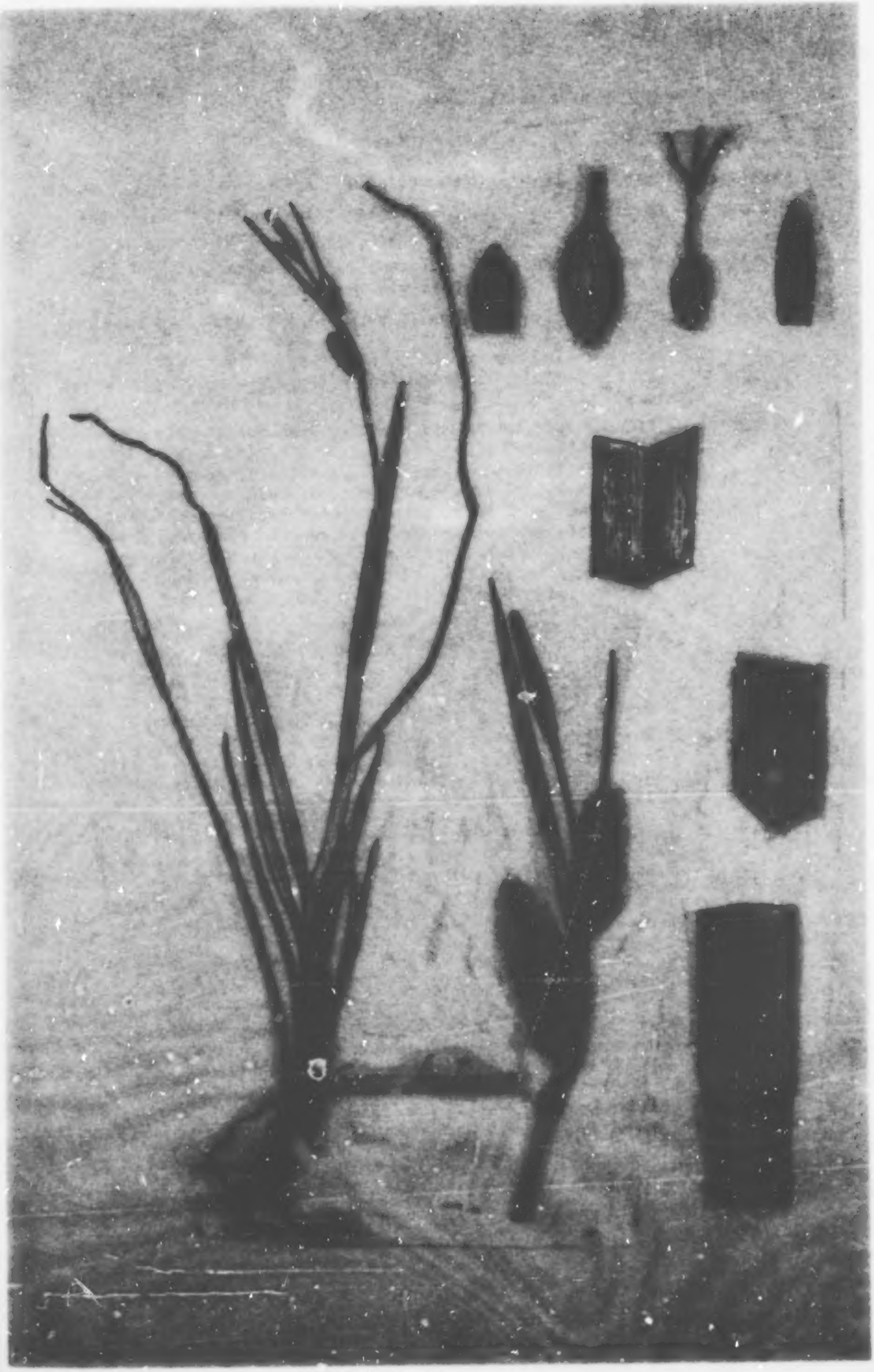
77. **CAREX HOSTIANA** DC., Cat. Pl. Hort. Bot. Monsp. 88. 1813.

77a var. *laurentiana* Fern. & Wieg., Rhodora 13:131. 1911.

ROOTSTOCKS	Rhizomes short; stolons short, decumbent; roots whitish to light-brown.
SHEATHS	Basal sheaths covered with marcescent brown leaves; inner band hyaline with faint green nerves, summit truncate; ligule broader than long.
LEAVES	Marcescent leaves numerous; fresh leaves, mostly basal, ascending stramineous, 0.2-4.0 dm long, 2.0-4.0 mm wide, plicate to flat, the apex soon marcescent, margins serrulate on upper 1/4.
CULMS	Cespitose, ascending, phyllopodic, 2.0-4.5 dm tall, slender sides 4 to 5-ribbed, angles acuminate, serrulate on upper 1/4, transverse section with large central cavity, and prominent vascular bundles.
SPIKES	Terminal spike staminate, 1.0-2.0 cm long, slender, linear-cylindric, long-peduncled; lateral spikes 2-4, pistillate, approximate or remote, 1.0-1.5 cm long, 0.5-1.0 cm thick, oblong-ellipsoid, stiped or short-peduncled; lowermost bract long-sheathing, foliaceous, ascending, about equaling inflorescence, uppermost lateral bract spathiform, foliaceous about equaling inflorescence, terminal bract setaceous, 1.0-1.5 cm long.
SCALES	Pistillate scales vinous, margins hyaline, midrib pale-green, broadly trinervate, costa evanescent near summit; blade shorter than perigynium, ovate, acuminate. Staminate scales larger, oblong, acuminate.
PERIGYNIA	Squarrose to ascending, stramineous, 3.0-3.5 mm long, subulate, body ellipsoid, nerved; beak 1/3 as long as body, straight, bidentate, margins serrulate.
ACHENE	Loosely enveloped by perigynium, dark brown, obovoid, trigonous, subapiculate; style articulate, blackish, slender, flexuous, 1.0-1.5 mm long; stigmas 3, reddish-brown, 2.0 mm long.

Var. *laurentiana*. Culms up to 6.0 dm tall, staminate spike 1.5-3.0 cm long; pistillate spikes 1-2, distant, 1.5-2.0 cm long; perigynium 3.0-5.0 mm long, flattened.

DISTRIBUTION	Temperate-boreal, amphiatlantic.
HABITAT	Eutrophic fens and marshes in sheltered valleys.
FORAGE VALUE	Insignificant because of its rareness.
CHROMOSOME NUMBER	2n = 56.



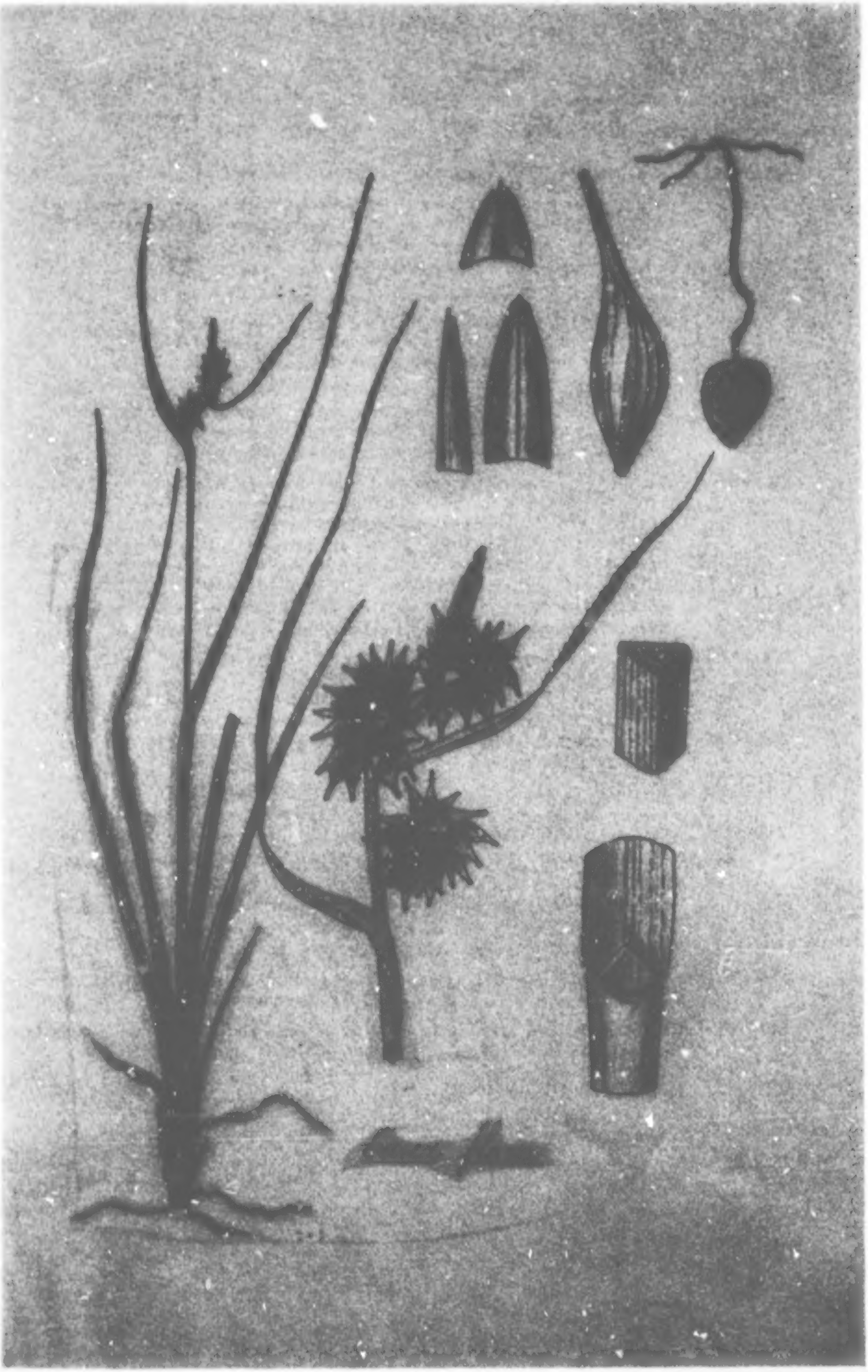
78. CAREX FLAVA L., Sp. Pl. 1:975. 1753.

78a var. fertilis Peck.

ROOTSTOCKS	Rhizomes short; roots whitish to light-brown.
SHEATHS	Basal sheaths fulvous to brown; inner band hyaline, summit prolonged, concave; ligule as long as broad.
LEAVES	Ascending, soft, stramineous, 2.5-5.0 dm long, 1.5-7.0 mm wide, flat, margins scabrous on upper 1/2.
CULMS	From rosettes, phyllopodic with 3-4 leaves on lower 1/4, 1.0-8.0 dm long, exceeding leaves, sides 4-ribbed, angles obtuse and smooth on lower 3/4, acute and serrulate at least between spikes, transverse section with large central cavity and prominent vascular bundles on ribs.
SPIKES	Terminal spike staminate, or less frequently gynaecandrous, 1.0-2.0 cm long, slender, linear-cylindric, sessile to short-peduncled; lateral spikes 2-5, pistillate, crowded at summit, distant below, 1.5-2.5 cm long, subglobose or short-cylindric, upper sessile, lowermost short-peduncled; lowermost bracts long-sheathing, foliaceous, divergent to deflexed, 2 to 4 times as long as inflorescence, upper bracts shorter, spathiform, long-attenuate to setaceous, 2 to 3 times as long as inflorescence.
SCALES	Pistillate scales fulvous to dark-brown with hyaline margins, midrib paler, green, broadly trinervate, costa slightly excurrent and serrulate dorsally; as long as body, ovate, obtuse, erose at summit. Staminate scales paler and slightly shorter, lanceolate.
PERIGYNIA	Reflexed stramineous, 3.0-6.0 mm long, subulate, the body ovoid, plano-biconvex, margins elevated dorsally, nerved, substipitate; beak as long as body, oblique ventrally, margins serrulate to body, emarginate.
ACHENE	Loosely enveloped by perigynium, brown, obovoid, trigonous, substipitate, summit broad and apiculate; style articulate, flexuous, minutely piloseglandulose, 2.0-3.0 mm long; stigmas 3.

Var. fertilis. Terminal spike pistillate, pistillate spikes (laterals) 0.5-1.0 cm thick; perigynia, 3.0-4.0 mm long.

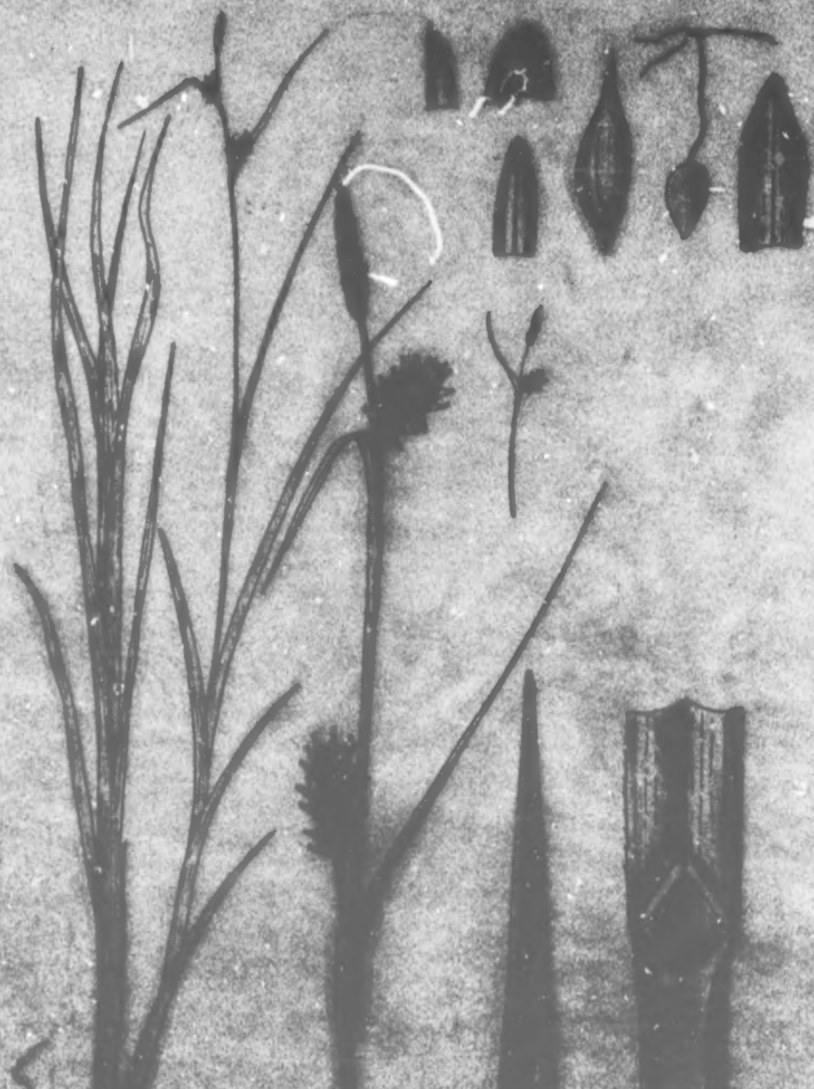
DISTRIBUTION	Temperate-boreal, transcontinental North America, amphiatlantic and disjunct cosmopolitan.
HABITAT	Most frequently in minerotrophic and eutrophic fens; less frequently on moderately rich peaty soils in balsam fir tuckamore, shores of rivers and ponds, black spruce fen forests and mountain maple thickets. Somewhat hemerophilic in wet disturbed sites in these communities.
FORAGE VALUE	Foraged by wildlife and domesticated animals. Excellent seed source for birds.
CHROMOSOME NUMBER	2n = 60.



79. **CAREX LEPIDOCARPA** Tausch, Flora 17:179. 1834.

79a var. *nelmesiana* Raymond, Bull. Soc. Bot. Fr. 99:194. 1952.

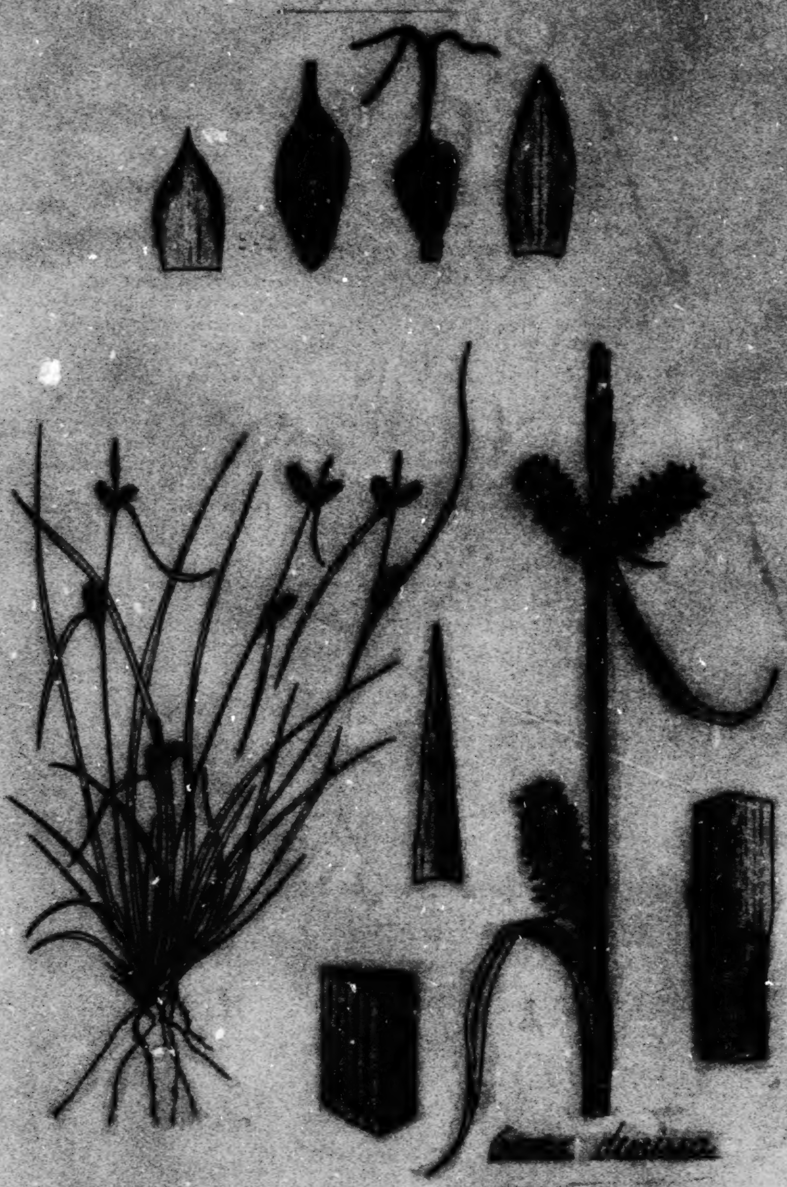
ROOTSTOCKS	Stolons short or lacking; roots dark brown, elongate.
SHEATHS	Basal sheaths covered with dark-brown marcescent leaves; inner band hyaline with marginal green nerves, summit fulvous-tinged, concave and somewhat sinuate; ligule longer than broad, retuse at apex.
LEAVES	Marcescent leaves numerous, young leaves stramineous to glaucous green, 0.2-6.0 dm long, 1.5-3.0 mm wide, flat to conduplicate, long-attenuate with acicular tip, margins serrulate on upper 1/2.
CULMS	Ascending, strongly aphyllopodic with 3 leaves near base, 2.0-8.0 dm tall, slender, sides strongly-ribbed, angles obtuse and smooth, transverse section with large central cavity and prominent vascular bundles.
SPIKES	Terminal spike staminate, 1.0-3.0 cm long, slender, linear-cylindric, short-peduncled; lateral spikes 1-3, pistillate, approximate to summit, or the lowermost remote, 1.0-2.0 cm long, 0.5-1.5 mm thick; ovoid,ellipsoid, stiped or short-peduncled; lowermost bract, long-sheathing, foliaceous, setaceous on upper 1/2, divergent to deflexed, rarely more than 1 1/2 times as long as inflorescence, upper bract reduced, spathiform, setaceous, 1.0-4.0 cm long.
SCALES	Pistillate scales vinous to brown, midrib paler, broadly trinervate, costa barely reaching summit or slightly excurrent and minutely serrulate dorsally; shorter and narrower than body of perigynium, ovate-lanceolate, acuminate or obscurely retuse at summit. Staminate scales paler and larger.
PERIGYNIA	Squarrose, stramineous to fulvous, 3.0-6.0 mm long, subulate, the body ovoid, plano-convex, margins elevated ventrally, substipitate; beak fulvous to vinous, straight to oblique ventrally, 1/2 as long as body, slender, emarginate.
ACHENE	Loosely enveloped by perigynium, brown, obovoid, compressed-trigonous, substipitate, apiculate; style articulate, flexuous, 2.0-4.0 mm long; stigmas 3, reddish brown.
DISTRIBUTION	Temperate-boreal, amphiatlantic, restricted to Newfoundland and areas around the Gulf of St. Lawrence.
HABITAT	Eutrophic fens and marls and calcareous barrens in western Newfoundland.
FORAGE VALUE	Same as *Carex flava*.



Carex lasiocarpa

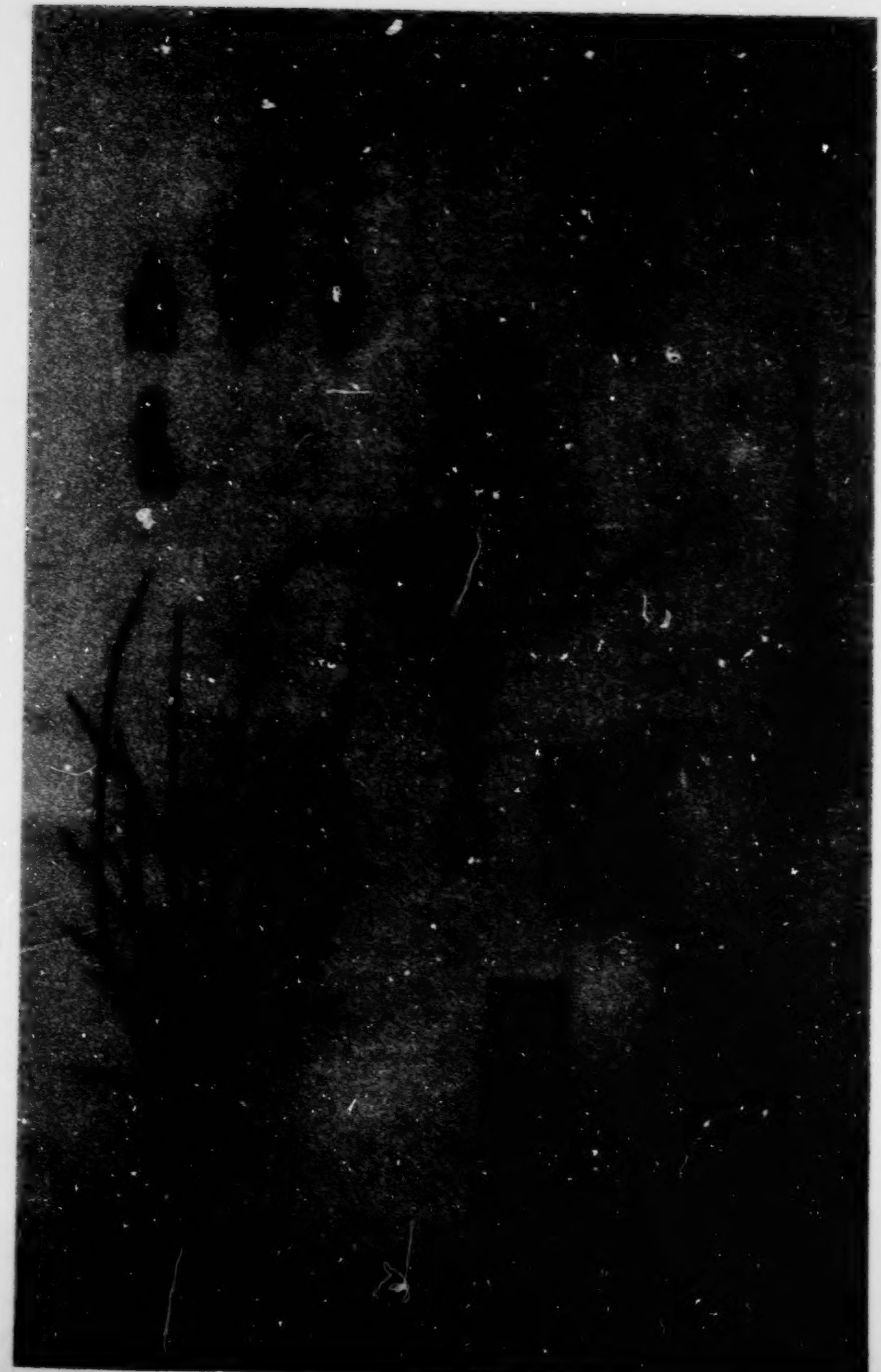
80. CAREX DEMISSA Hornem., Fl. Dan. 1637. 1816.

ROOTSTOCKS	Rhizomes short; roots yellowish, dense, elongate.
SHEATHS	Basal sheaths fulvous to stramineous; inner band hyaline, summit divergent, truncate to concave; ligule broader than long.
LEAVES	Ascending, diffuse or recurved, deep green, 0.2-3.0 dm long, 3.0-5.5 mm wide, flat to plicate, margins scabrous on upper 1/2-2/3.
CULMS	Sterile culms cespitose; fertile culms 1-few, ascending to arching, 0.5-3.0 dm tall, usually shorter than leaves, sides spirally 4-ribbed near summit, angles obtuse and smooth; transverse section with small central cavity, triangular below becoming pentagonal towards summit.
SPIKES	Terminal spike staminate, 0.5-2.0 cm long, slender, linear-cylindric, short-peduncled; lateral spikes 2-4, pistillate, the upper contiguous or approximate at summit, the lower distant or remote. 1.0-1.5 cm long, 5.0-7.0 mm thick, globose-oblong, short-peduncled or the upper sessile; lowermost bract long-sheathing, foliaceous, divergent or deflexed, 2 to 3 times as long as inflorescence, upper bracts, spathiform, smaller, or the subterminal scale-like with short setaceous blade.
SCALES	Pistillate scales fulvous, midrib green, slenderly trinervate; shorter than body of perigynium, ovate, acuminate. Staminate scales paler, larger and narrower, ovate-lanceolate.
PERIGYNIA	Squarrose, stramineous or fulvous, 2.0-3.5 mm long, obovoid, trigonous, with prominent angles, beak 1/3 as long as body, slender, bidentate.
ACHENE	Loosely enveloped by perigynium, dark-brown, obovoid, compressed-trigonous, substipitate, apiculate; style articulate, 1.0 mm long; stigmas 3, from inside beak, 2.0-2.5 mm long, reddish-brown.
DISTRIBUTION	Temperate-boreal, amphiatlantic.
HABITAT	Minerotrophic and eutrophic fens, particularly in coastal areas.
FORAGE VALUE	Grazed by horses, cattle and sheep; also a good seed source for birds.
CHROMOSOME NUMBER	2n = 70.



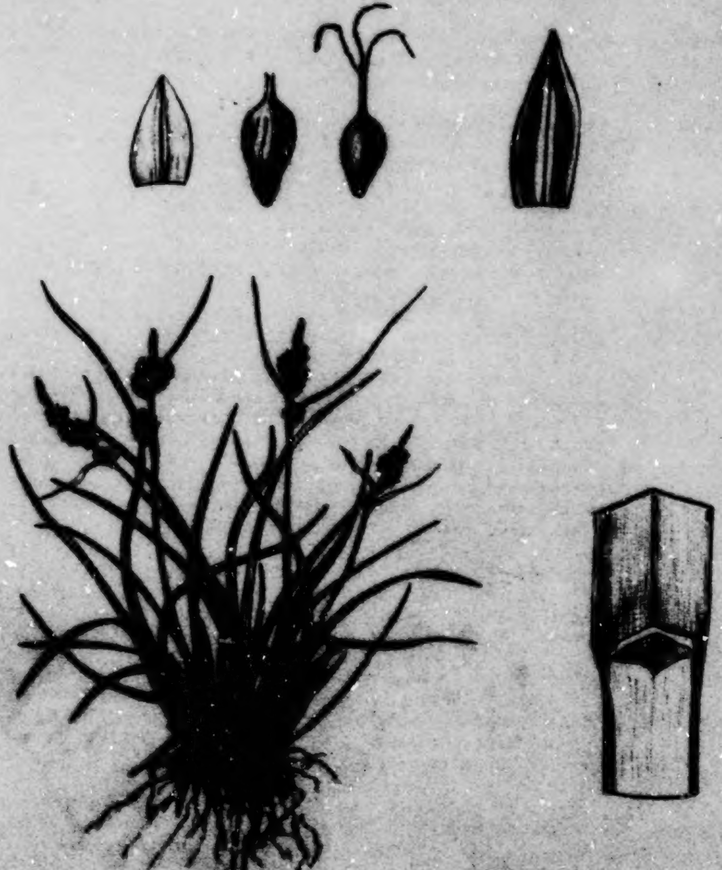
81. CAREX VIRIDULA Michx., Fl. Bor. Am. 2:170. 1803. (Not Fr. 1898.)

ROOTSTOCKS	Rhizomes short; roots yellowish, dense, elongate.
SHEATHS	Basal sheaths brown to stramineous; inner band hyaline, summit divergent, concave or truncate; ligule longer than broad, obtuse.
LEAVES	Strongly ascending, stramineous to light-green, 0.5-2.0 dm long, 1.0-2.5 mm wide, plicate to conduplicate, acicular-tipped, margins serrulate on upper 1/2, midrib prominent and serrulate dorsally on upper 1/4.
CULMS	Cespitose from dense mats, erect, phyllopodic with 2-3 leaves on lower 1/2, 0.2-4.5 dm tall, sides finely-ribbed, angles obtuse and smooth, transverse section with large central cavity and prominent vascular bundles.
SPIKES	Terminal spike staminate, gynaecandrous, or frequently pistillate, 0.5-2.0 cm long, sessile or stiped, barely exceeding or concealed by subterminal pistillate spike; lateral spikes 2-6, pistillate, upper contiguous at summit, lower distant or remote, 0.5-2.0 cm long, ellipsoid to subglobose, sessile or the lower stiped; lowermost bract short-sheathing, foliaceous, ascending; upper bracts sheathless, foliaceous to setaceous, divergent or flexuous-deflexed, 0.3-1.0 dm long.
SCALES	Pistillate scales stramineous to fulvous with hyaline margins, midrib pale, slenderly trinervate, costa barely reaching summit, prominent and divergent dorsally near summit; equaling body of perigynium, ovate, acuminate. Staminate scales darker and twice as long, lanceolate.
PERIGYNIA	Squarrose, green to brown, 2.0-3.0 mm long, obovoid, biconvex, base truncate, conspicuously nerved, margins prominent; beak 1/3 as long as body, darker, slender, straight or oblique ventrally, bidentate.
ACHENE	Loosely enveloped by perigynium, dark-brown, obovate with flattish summit, trigonous, subapiculate; style articulate, blackish, slender, 0.3 mm long; stigmas 3, from inside beak, 2.0 mm long.
DISTRIBUTION	Temperate-southern boreal, amphiPacific, amphiEuropean and disjunct in alpine regions of central Asia and transcontinental North America.
HABITAT	Euminerotrophic fens and marls.
FORAGE VALUE	Same as Carex flava.



82. CAREX SEROTINA Merat, Fl. Neuvorp. u Rugen 537. 1869.

ROOTSTOCKS	Rhizomes short, roots yellowish-brown, dense, elongate.
SHEATHS	Basal sheaths brown to stramineous; inner band white becoming brownish, summit divergent, truncate; ligule broader than long, obtuse.
LEAVES	Rigid, ascending or recurved, fulvous, with numerous marcescent leaves present at base; 0.5-3.0 dm long, 1.5-2.0 mm wide, flat becoming revolute, blunt-tipped, margins serrulate from near sheath, midrib prominent and serrulate on upper 3/4.
CULMS	Cespitose from tufts, erect, phyllopodic with 2-3 leaves on lower 1/4, 5-15 cm tall, sides prominently ribbed, angles obtuse, smooth, transverse section with small central cavity and prominent vascular bundles.
SPIKES	Terminal spike staminate or infrequently gynecandrous, subsessile, 0.5-1.0 cm long, exceeding subterminal pistillate spike; lateral spikes 3-5, pistillate, upper contiguous or approximate at summit, lower distant or remote, 0.5-1.0 cm long, ovoid, sessile or the lowermost peduncled; lowermost bracts short-sheathing, foliaceous, ascending; upper bracts sheathless, foliaceous, reflexed, 3-8 cm long.
SCALES	Pistillate scales fulvous, midrib pale-green, slenderly trinervate, costa reaching summit, exceeding body of perigynia, ovate, acuminate. Staminate scales fulvous, margins hyaline, lanceolate.
PERIGYNIA	Squarrose, stramineous, 2-2.5 mm long, obovoid, biconvex, base truncate, obscurely nerved, margins prominent; beak 1/4 as long as body, darker, straight, clefted.
ACHENE	Loosely enveloped by perigynia, dark-brown, obovate, with flattish summit, trigonous, subapiculate; style articulate, blackish, slender, 0.3 mm long; stigmas 3 from inside beak, 2.0 mm long.
DISTRIBUTION	Temperate-boreal, eastern Eurasia and amphiatlantic.
HABITAT	Rich sites at edge of minerotrophic fens and marshes.
FORAGE VALUE	Insignificant because of its rareness.
CHROMOSOME NUMBER	2n = 70.



Carex serotina

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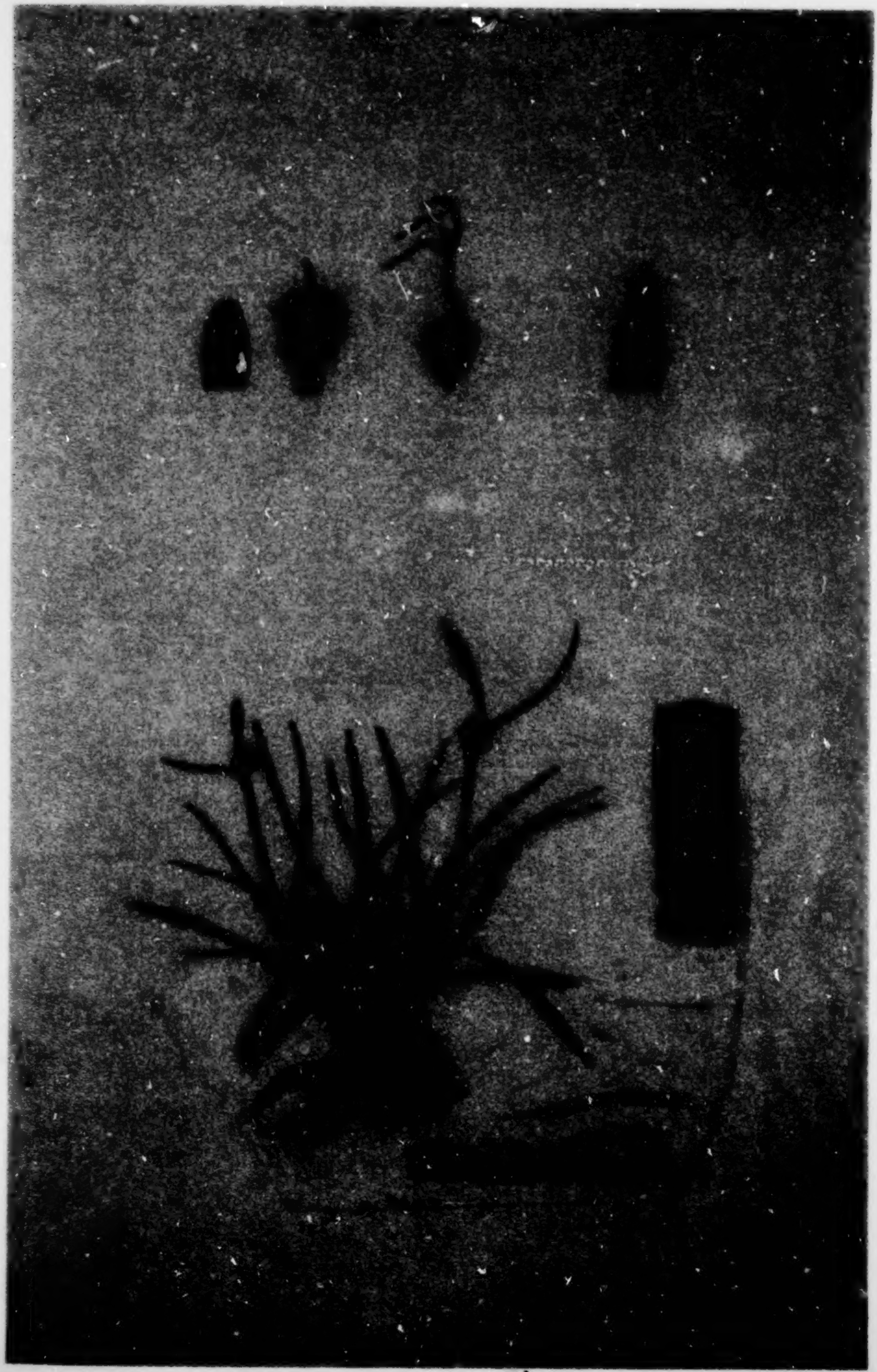
83. CAREX SAXILITTORALIS Robertson, Rhodora 82:369-374. 1980.

ROOTSTOCKS	Stolons short or lacking; roots whitish to dark brown, elongate, slender.
SHEATHS	Basal sheaths fulvous to brown, covered with marcescent leaves at base; inner band hyaline, concave and somewhat sinuate; ligule broader than long.
LEAVES	Ascending, diffuse or recurved 3-8 cm long, 1.5-5.0 mm wide, flat to plicate, slightly septate-nodulose, margins and midrib minutely scabrous on upper 1/2-2/3.
CULMS	Phyllopodic, with basal leaves, 1-few, stiffly ascending or erect, usually exceeding leaves, sides 4-ribbed, spiralling near summit, angles obtuse and smooth, transverse section with large central cavity and prominent vascular bundles.
SPIKES	Terminal spike staminate, long-peduncled or subsessile, 1.5-2.0 cm long, 2.0 mm wide, linear-cylindric; lateral spikes pistillate 1-2 (rarely 3), contiguous-approximate at summit and sessile, or the lower basal and short-peduncled, 5.0-7.0 mm long, 3.0-5.0 mm wide,globose-ovoid, lowermost bract (of basal spike only), foliaceous, ascending, equaling inflorescence, long-sheathing; upper bracts shorter divergent or reflexed, barely exceeding inflorescence in length, spathiform, or the subterminal bract scale-like and inconspicuous.
SCALES	Pistillate scales vinuous to brown, equaling and narrower than body of perigynia, ovate, obtuse and erose at summit; midrib paler, slenderly trinervate, costa barely reaching summit. Staminate scales paler, shorter and lanceolate.
PERIGYNIA	Squarrose, yellowish-green to brown, 2.0-3.0 mm long, 1.0-1.5 mm wide, obovoid, biconvex, prominently two-ribbed, conspicuously 10-nerved, base truncate, beak 0.5 mm long, abrupt, slender, straight or oblique ventrally, emarginate.
ACHENE	Loosely enveloped by perigynium, dark-brown, obovoid, trigonous, subapiculate; style contorted at base, brownish, 0.3 mm long; stigmas 3, from inside beak, 2.0 mm long.
DISTRIBUTION	Boreal, endemic to Newfoundland.
HABITAT	Gravelly soils in quiet tidal zones along seashores and sea spray zones in calcareous coastal barrens.
FORAGE VALUE	Good seed source for birds.



ORTHOCERATES Koch, Syn. Fl. Germ. 748. 1837.

84. CAREX MICROGLOCHIN Wahl., Sv. Vet.-Akad. Nya Handl. 24:140. 1803.

ROOTSTOCKS Stolons yellowish, short; roots stramineous to whitish, elongate.

SHEATHS Basal sheaths blade-bearing; inner band brown, summit prolonged, truncate; ligule broader than long, retuse.

LEAVES All basal, strict, to ascending, pale-green, 0.2-1.0 dm long, 1.0 mm wide, involute, acicular.

CULMS Strict phyllopodic with basal leaves, 0.4-3.0 dm tall, filiform, sides 2-ribbed, angles obtuse and smooth, or slightly winged near summit, transverse section with small round central cavity, vascular bundles large and between ribs.

SPIKE Solitary, androgynous, young spike 1.0 cm long, linear-cylindric, mature spike with 3-12 reflexed perigynia; bractless.

SCALES Pistillate scales brown with fulvous margins, midrib pale, broadly trinervate, reaching to near summit, half as long as perigynium, oblong abruptly acuminate, blunt at apex, caducous. Staminate scale longer and narrower, lanceolate-ovate, acuminate.

PERIGYNIA Stramineous, 4.0-5.0 mm long, 0.5-1.0 mm thick, subulate, thickly nerved, base spongy, orifice terete to bidenticulate.

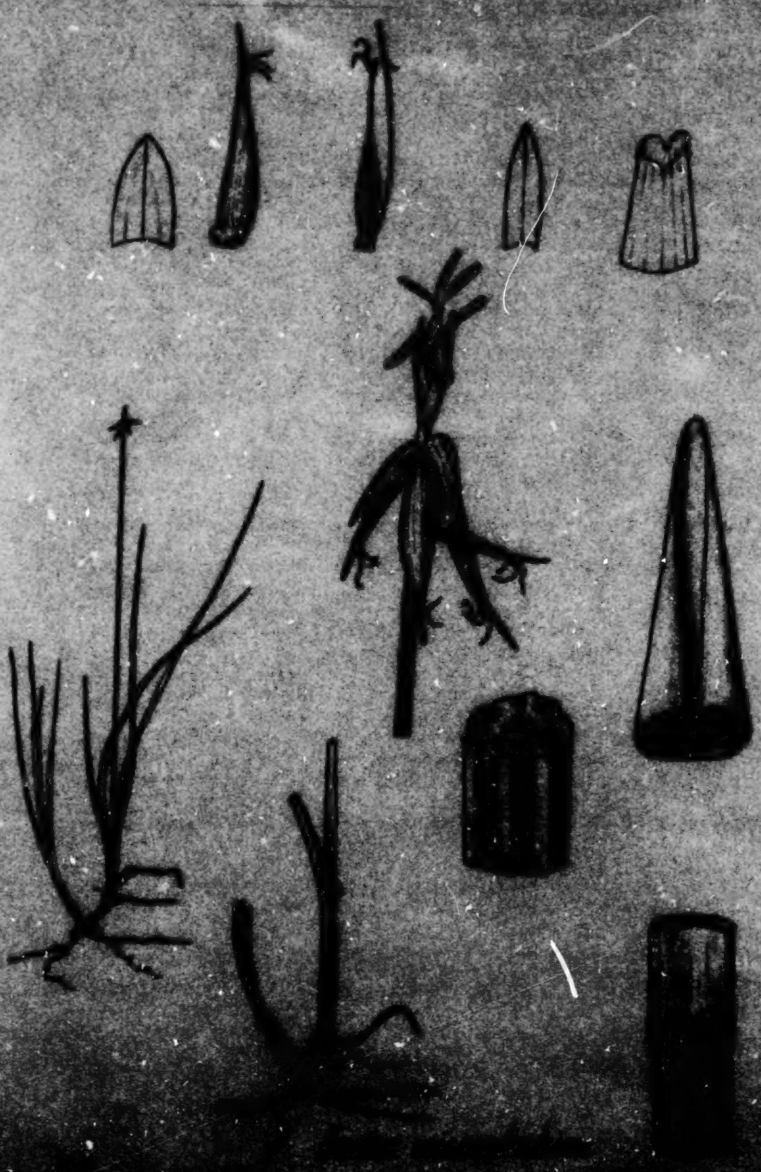
ACHENE With whitish subtending rachilla projecting above styles; achene closely enveloped by perigynium, dark-brown, subulate, nerved, truncate at base; style persistent 1.0 mm long; stigmas 3, 1.0-1.5 mm long.

DISTRIBUTION Disjunct cosmopolitan, chiefly alpine regions.

HABITAT Calcareous coastal barrens; alpine and subalpine slope fens in calcareous regions.

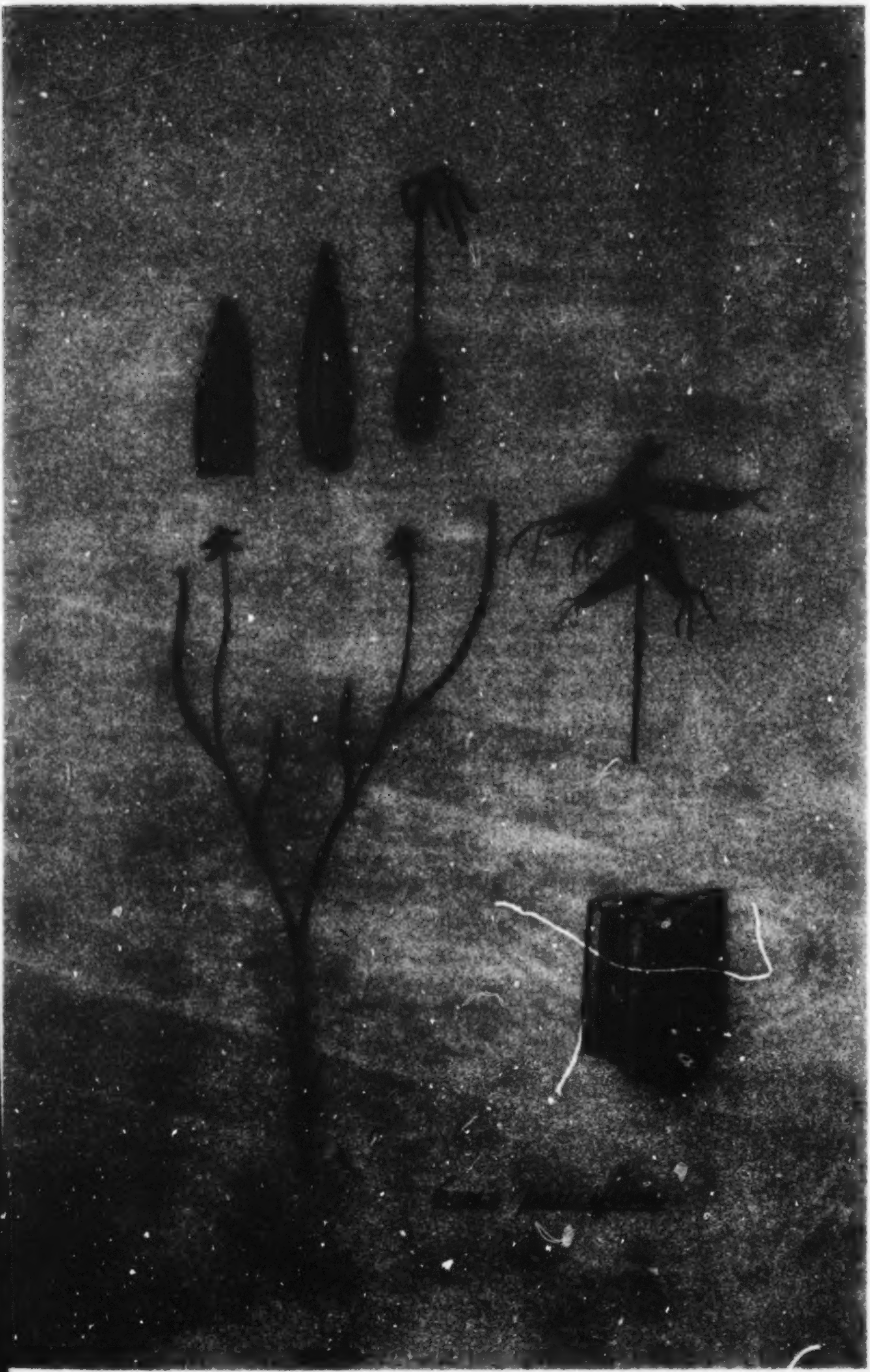
FORAGE VALUE Insignificant.

CHROMOSOME NUMBER 2n = 56, 58.



85. CAREX PAUCIFLORA Lightf., Fl. Scot. 543. 1777.

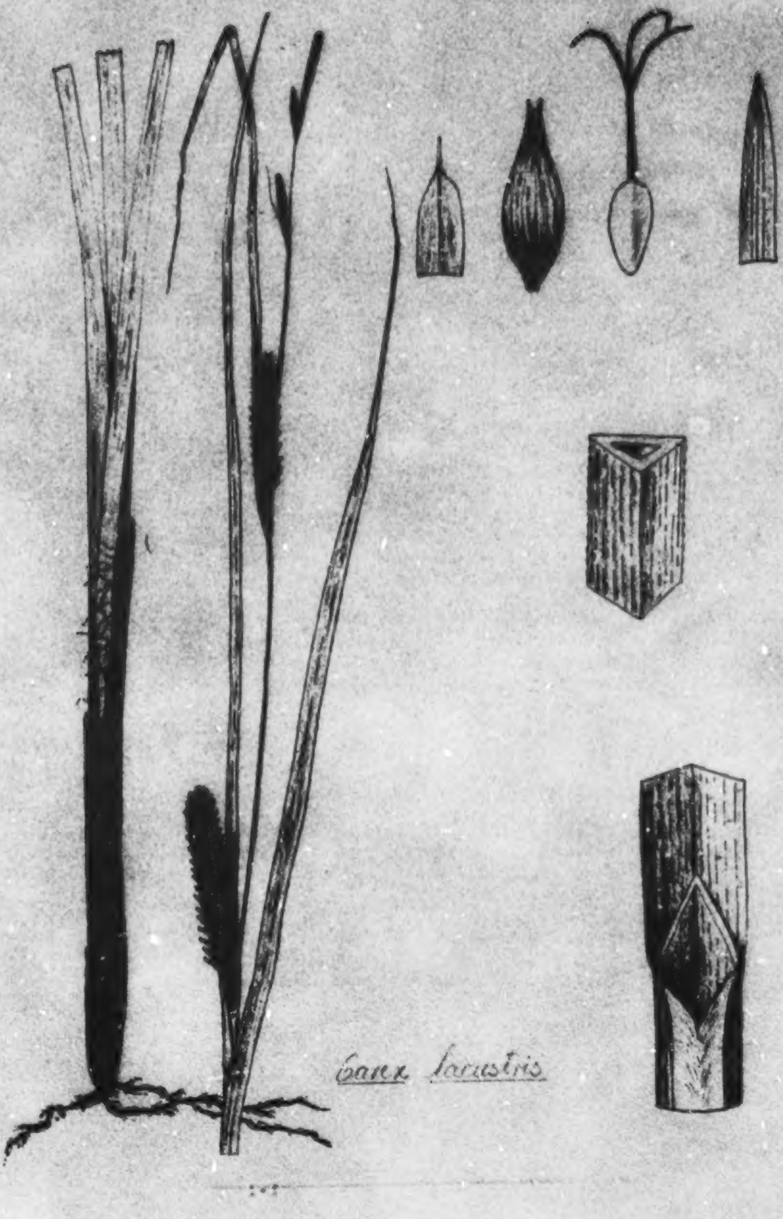
ROOTSTOCKS	Rhizomes sympodial, short-creeping rhizomes forming mat, yellowish to brown, long, slender; roots yellowish, elongate.
SHEATHS	Basal sheaths bladeless; inner band hyaline, summit concave; ligule, broader than long, convex.
LEAVES	Loosely tufted, ascending-curved, stramineous to light-green, exceeding culm, involute, acicular, margins serrulate at least at sheath.
CULMS	Ascending-curved, with 1-2 leaves, the lower leaf 2.0-3.0 cm long, upper leaf 6.0-9.0 cm long; culm 0.5-5.0 dm tall, filiform, sides with 1-2 ribs, angles obtuse and serrulate at least on lower 1/4, transverse section solid with prominent vascular bundles between ribs.
SPIKES	Solitary, androgynous, 0.7-1.0 cm long, when young linear-cylindric, at maturity the 1-6 perigynia reflexed; bractless.
SCALES	Pistillate scale fulvous with paler margins, midnerve pale, broadly trinervate, barely reaching summit; 2/3 as long as perigynium, oblong-ovate, acuminate. Staminate scales lanceolate-ovate.
PERIGYNIA	Stramineous, 6.0-7.0 mm long, subulate, nerved, base spongy, orifice terete.
ACHENE	Without subtending rachilla, closely enveloped by perigynium on lower 1/2, fulvous, 1/2 as long as perigynium, ellipsoid-obovoid, lenticular, biconvex, truncate at base, nerveless; style persistent 3.0 mm long; stigmas 3, 1.0 mm long.
DISTRIBUTION	Temperate-boreal, transcontinental Eurasia, eastern North America and amphipacific.
HABITAT	Oligotrophic, mesotrophic and dwarf-shrub bogs; occasionally in minerotrophic fens.
FORAGE VALUE	Insignificant
CHROMOSOME NUMBER	2n = 76.



PALUDOSAE Fries, Fl. Scan. 190. 1835.

86. CAREX LACUSTRIS Willd., Sp. Pl. 4:306. 1805.

ROOTSTOCKS	Rhizomes creeping, stoloniferous; roots brown.
SHEATHS	Basal sheaths vinous, bladeless, fibrillose; inner band hyaline, ladder fibrillose, retuse at summit; ligule longer than broad.
LEAVES	Ascending, stramineous to glaucouse-green, older leaves lustrous, septate-nodulose, 0.5-1.0 mm long, 0.8-1.5 cm wide, plicate to conduplicate, margins serrulate on upper 1/2.
CULMS	Cespitose, erect, aphyllopodic, 0.5-1.3 mm tall, sides finely-ribbed, angles acuminate, serrulate on upper 1/4, transverse section with large central cavity and inconspicuous vascular bundles.
SPIKES	Staminate spikes uppermost, 2-4, the terminal 3.0-8.0 cm long, slender, linear-cylindric, short-peduncled, the laterals much shorter, approximate or distant, sessile; pistillate spikes 2-4, erect or divergent, 3.0-9.0 cm long, thick, linear-cylindric, remote, short peduncled; lowermost bract short-sheathing, foliaceous, exceeding or equaling inflorescence; bracts subtending uppermost staminate spikes setaceous to finally scale-like.
SCALES	Pistillate scales fulvous, margins hyaline, midrib pale-green, slenderly trinervate, costa excurrent to short awn; blade shorter than perigynium, oblong-ovate, margin erose, at summit, acuminate. Staminate scales longer, narrowly oblong, acute.
PERIGYNIA	Olivaceous, glabrous, subcoriaceous, 5.0-7.0 mm long, lance-ovoid, gradually tapering into beak, turgid, nerved, substipitate; beak with broad-based erect or divergent teeth.
ACHENE	Closely enveloped by perigynium, pale-green, obovoid, trigonous, subapiculate; style articulate, reddish-brown, pilose, 2.0-3.0 mm long; stigmas 3, reddish-brown, 2.5-3.5 mm long.
DISTRIBUTION	Temperate-boreal, transcontinental North America.
HABITAT	Marshes. Known only from Harry's Brook, Stephenville Crossing.
FORAGE VALUE	Insignificant because of its rareness.

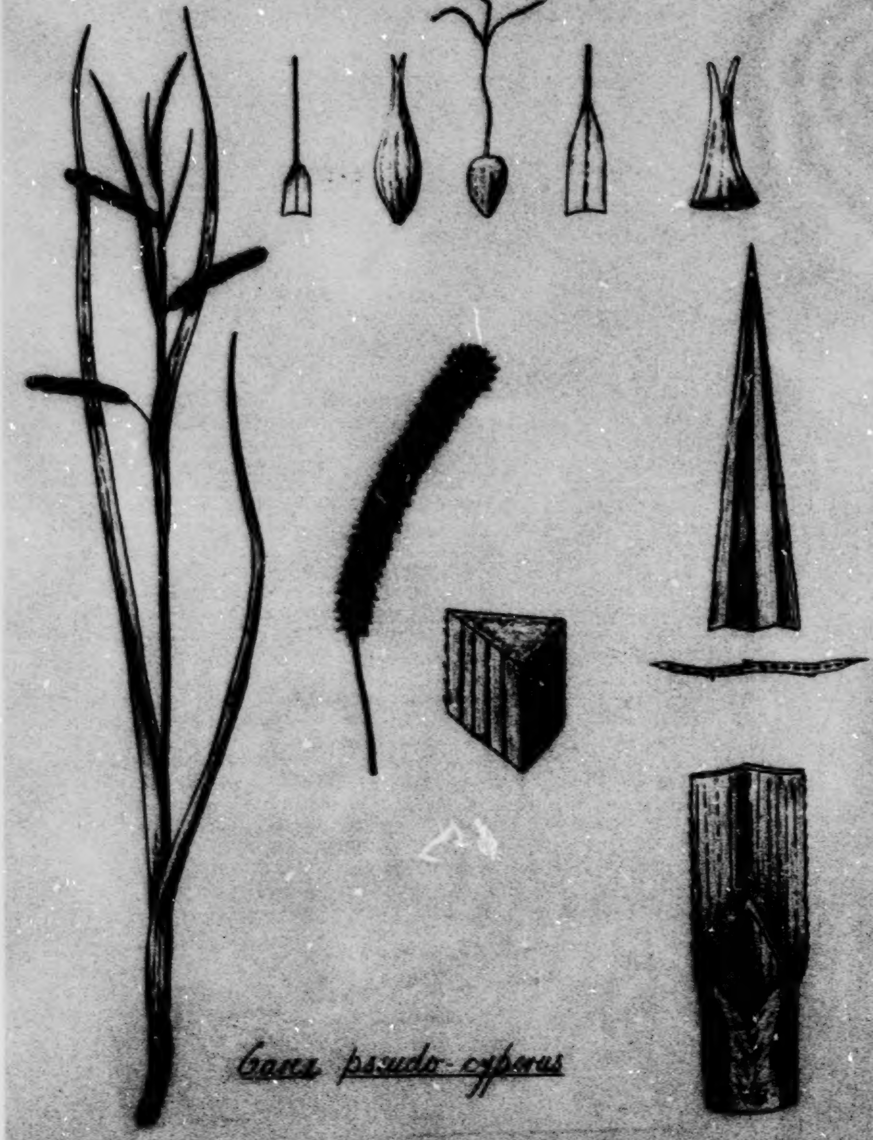


Carex lacustris

PSEUDO-CYPEREAE Tuckerm., Enum. Caric. 13. 1843.

87. CAREX PSEUDO-CYPERUS L., SP. Pl. 1:978. 1753.

ROOTSTOCKS	Rhizomes short; rootstocks stout; roots orange-brown, felted.
SHEATHS	Basal sheaths brown; inner band ladder-fibrillose, prolonged and loose at summit; ligule longer than broad, acuminate.
LEAVES	Winter-green, firm, ascending, 0.5-1.0 m long, 0.5-1.0 cm wide, flat to conduplicate, prominently septate-nodulose, margins scabrous to base, midrib scabrous dorsally to sheath, scabrous ventrally on upper 1/2.
CULMS	Erect, 0.7-1.2 m tall, thick, sides strongly ribbed, angles acute, scabrous, transverse section solid.
SPIKES	Terminal spike staminate, 4.0-6.0 cm long, slender, linear-cylindric, sessile; lateral spikes 3-5, pistillate, approximate or distant cernuous, 2.5-8.0 cm long, 0.8-2.0 cm thick, linear-cylindric, long peduncled, flowers dense, reflexed at maturity; lateral bracts sheathing, foliaceous, considerably exceeding inflorescence; terminal bract spathiform, setaceous prominently scabrous-margined, shorter than spike.
SCALES	Pistillate scales reddish-brown, midrib dark-green to brown, broadly trinervate, costa excurrent to a long rough awn and equaling or exceeding perigynium; blade very small, oblong and erose-margined at summit. Staminate scales larger.
PERIGYNIA	Stramineous to fulvous, 3.0-5.0 mm long, ovoid-lanceolate, biconvex, thick-nerved, substipitate; beak 1/3 as long as body, emarginate, the teeth divergent and 0.5-1.0 mm long.
ACHENE	Loosely enveloped by perigynium, brown, ovoid-ellipsoid, trigonous, substipitate; style continuous, persistent, flexuous, 2.0-3.0 mm long, pale; stigmas 3, reddish-brown, 2.0-3.0 mm long.
DISTRIBUTION	Temperate-boreal, disjunct cosmopolitan.
HABITAT	Rare, marshes and eutrophic fens.
FORAGE VALUE	Insignificant because of its rareness.
CHROMOSOME NUMBER	2n = 66.



Carex pseudo-cyperus

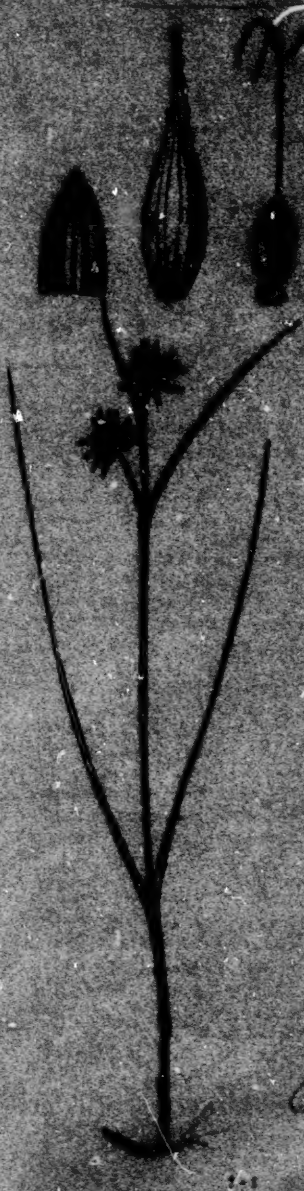
88. CAREX HYSTRICINA Muhl., in Willd. Sp. Pl. 4:282. 1805.

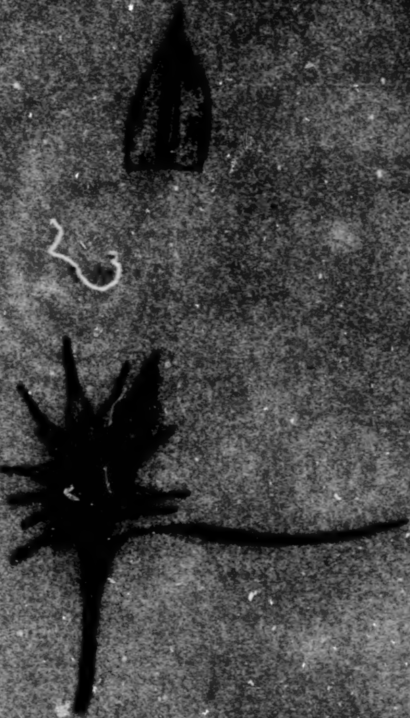
ROOTSTOCKS	Rhizomes slender, creeping; rootstocks stout; roots light-brown.
SHEATHS	Basal sheaths vinous, fibrillose; inner band hyaline, ladder-fibrillose, summit short-prolonged, emarginate; ligule as broad as long.
LEAVES	Flaccid, light-green, 3.0-7.0 dm long, 3.0-9.0 mm wide, flat to conduplicate, septate-nodulose, margins serrulate on upper 1/2, midrib serrulate dorsally on upper 1/5.
CULMS	Erect, with 3-7 leaves, 1.5-9.0 dm tall, slender sides finely-ribbed, angles acuminate, serrulate on upper 1/3, transverse section solid.
SPIKES	Terminal spike staminate, 3.0-5.0 cm long, slender, linear-cylindric, peduncled; lateral spikes 1-4, pistillate, approximate or distant to remote, the lower divergent to cernuous, long-peduncled, the upper ascending to erect, short-peduncled, 1.0-5.0 cm long, 1.0-1.5 cm wide, linear-cylindric; flowers diffuse, reflexed at maturity; lateral bracts foliaceous, sheathing, exceeding inflorescence, terminal bract setaceous, spathiform, margin serrulate, shorter than spike.
SCALES	Pistillate scales light-castaneous, margins hyaline, midrib pale-green, broadly trinervate, costa excurrent to a serrulate long-awn equaling perigynium; blade inconspicuous, ovate, erose-margined at summit. Staminate scales longer, oblong, and with shorter awn.
PERIGYNIA	Stramineous, 4.0-6.0 mm long, ovoid-lanceolate, turgid, nerved, substipitate; beak 1/4 as long as body, emarginate, the divergent teeth 0.5 mm long.
ACHENE	Loosely enveloped by perigynium, brown, granulose, obovoid with flattened apex, trigonous; style pale, flexuous, 3.0-4.0 mm long; stigmas 3, reddish-brown, 2.0-3.0 mm long.
DISTRIBUTION	Temperate-boreal, transcontinental North America.
HABITAT	Rare, marshes and eutrophic fens.
FORAGE VALUE	Insignificant because of its rareness.

FOLLICULATAE Mack., in Britt. & Brown, Illus. Fl. ed. 2. 1:353. 1913.

89. CAREX MICHAUXIANA Bockel., Linnaea 41:336. 1877.

ROOTSTOCKS	Rhizomes and stolons lacking; roots stramineous.
SHEATHS	Basal sheaths brown, upper sheaths white with green nerves on dorsal surface; inner band hyaline, brown-tinged and concave at summit; ligule as long as broad, truncate at summit.
LEAVES	Stramineous, the basal leaves crowded, up to 2.5 dm long, 3.0-5.5 mm wide, flat becoming conduplicate above middle, finally contracted to acicular tip 1.5-4.0 cm long, margins serrulate to sheath or only on upper 1/4, midrib serrulate dorsally near summit.
CULMS	Erect, aphyllopodic, 2.0-6.0 dm tall, exceeding leaves, sides 4-5 ribbed angles obtuse and smooth, transverse mid-section rounded, solid with prominent vascular bundles.
SPIKES	Terminal spike staminate, 0.8-1.5 cm long, lanceolate, sessile, scarcely projecting from subterminal pistillate spike; lateral spikes 2-4, pistillate, crowded at summit or the lower remote, 1.0-2.0 cm long, subglobose or ellipsoid, peduncled; bracts sheathing, foliaceous, 1.0-3.0 mm wide, exceeding inflorescence.
SCALES	Pistillate scales hyaline or fulvous-tinged, midrib pale, broadly trinervate, costa slightly excurrent, 1/2 as long as perigynium, ovate, acuminate. Staminate scales lanceolate, obtuse.
PERIGYNIA	Appressed-ascending becoming divergent, caducous, stramineous to green, 0.8-1.5 cm long, subulate, turgid, nerved, truncate and spongy at base; beak as long as body, slender, serrulate on margins, orifice emarginate.
ACHENE	Closely enveloped by body of perigynium, green, obovoid, trigonous, truncate at base; style persistent, yellowish, 4.0-6.0 mm long, flexuous; stigmas 3, reddish-brown, 1.0-2.0 mm long.
DISTRIBUTION	Boreal, eastern North America.
HABITAT	Mesotrophic bogs and minerotrophic fens; occasionally in marshes, alder swamps and open balsam fir tuckamore.
FORAGE VALUE	Insignificant.

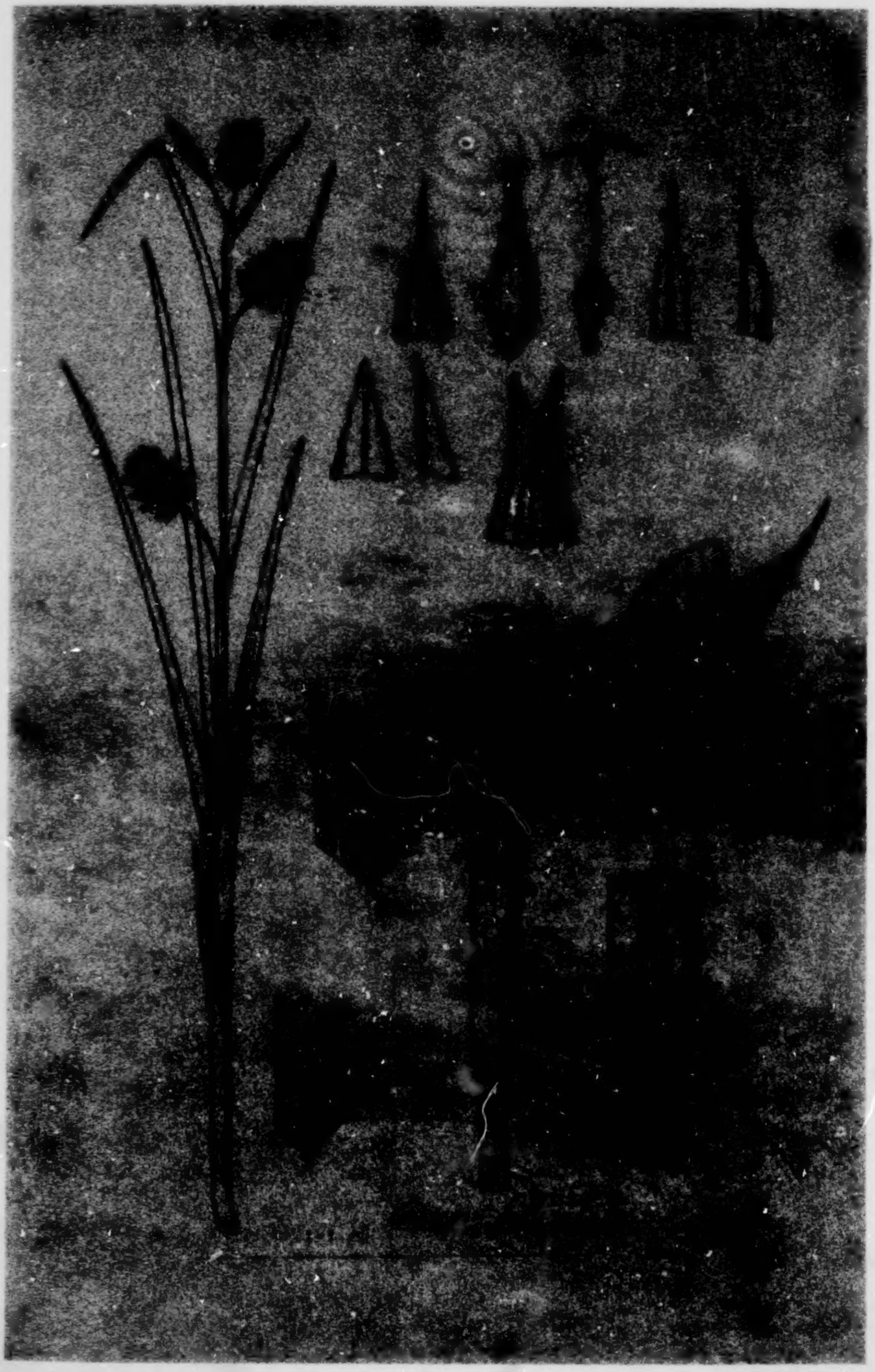




Carex microstigma

90. CAREX FOLLICULATA L., Sp. Pl. 1:978. 1753.

ROOTSTOCKS	Rhizomes and stolons lacking; roots dark-brown.
SHEATHS	Basal sheaths brown, decompose rapidly; blade-bearing sheaths with transverse nerves; inner band hyaline, summit prolonged and concave; ligule slender, as long as broad, retuse at apex.
LEAVES	Stramineous, lustrous, principal leaves on sterile culms basal, 0.8-3.0 dm long, 0.5-1.8 cm wide, flat to plicate, prominently septate-nodulose, margins scabrous on upper 1/3, midrib serrulate dorsally on upper 1/3.
CULMS	Cespitose, aphyllopodic, 0.5-1.0 m tall, exceeding leaves, sides finely-ribbed, angles obtuse and smooth, transverse midsection rounded, solid with conspicuous vascular bundles.
SPIKES	Terminal spike staminate, 1.0-2.5 cm long, short-peduncled, lateral spikes 2-4, pistillate, at summit approximate and subsessile, the lower remote and peduncled, divergent or cernuous, 2.0-3.0 cm long, subglobose to ellipsoid; bracts long-sheathing, foliaceous, 2.0-8.0 mm wide, exceeding inflorescence.
SCALES	Pistillate scales hyaline, midrib pale, slenderly trinervate, costa excurrent to cuspidate or short-awn, and serrulate dorsally; blade 3/4 to as long as perigynium, ovate-lanceolate, acute, margins obscurely serrulate. Staminate scales oblong, abruptly acuminate, usually long-awned.
PERIGYNIA	Appressed-ascending becoming divergent, caducous, stramineous, 1.0-1.5 cm long, subulate, turgid, strongly nerved, substipitate and spongy at base; beak 1/4 as long as body, margins slightly serrulate at summit, emarginate, the suture minutely serrulate.
ACHENE	Closely enveloped by body of perigynium, green, obovoid, trigonous, substipitate; style flexuous and sometimes curled, 5.0-8.0 mm long; stigmas 3, reddish-brown, 3.0-5.0 mm long.
DISTRIBUTION	Temperate-boreal, eastern North America.
HABITAT	Most frequently in alder swamps, edges of minerotrophic fens and marshes; less frequently in mesotrophic bogs. Has slight hemerophilic tendencies on drier disturbed sites near these communities, e.g. footpaths beside rivers and ponds.
FORAGE VALUE	Excellent seed source for forest birds.



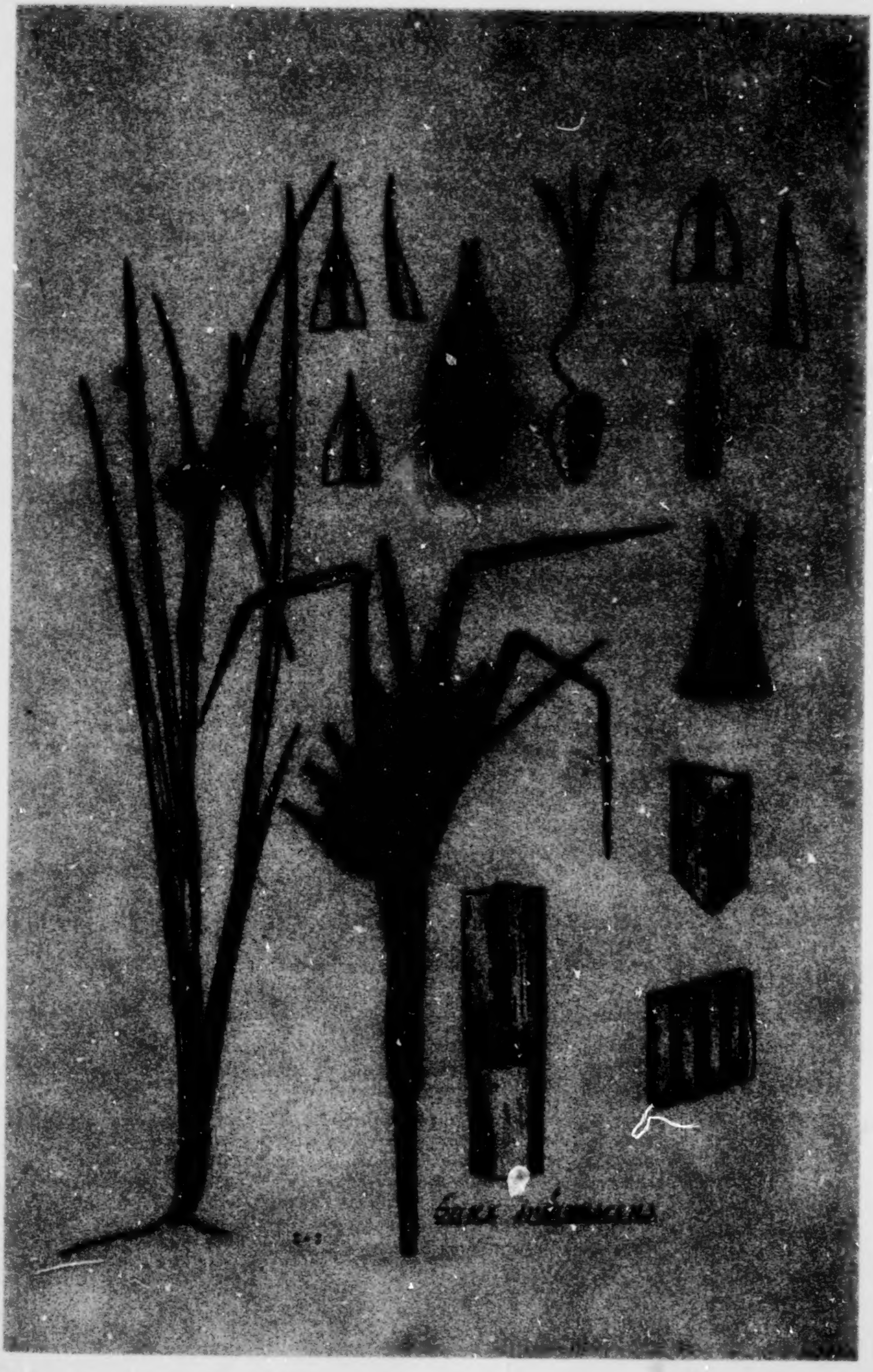
LUPULINAE Tuckerm., Enum. Caric. 13. 1843.

91. **CAREX INTUMESCENS** Rudge, Trans. Linn. Soc. 7:97. 1804.
91a var. *fernaldii* Bailey, ex Fern., Rhodora 44:321. 1944.
91b forma *ventriosa* Fern., Rhodora 44:321. 1944.

ROOTSTOCKS	Stolons short or lacking; roots dark-brown.
SHEATHS	Basal sheaths vinous, or dark-brown; inner band green, slightly ladder-fibrillose, prolonged and truncate at summit; ligule longer than broad, obtuse.
LEAVES	Soft and lax, dark-green, 2.0-8.0 dm long, 2.0-8.0 mm wide, flat to plicate, margins serrulate to sheath.
CULMS	Loosely cespitose, 3.0-8.0 dm tall, equaling or shorter than leaves, slender, sides finely-ribbed, angles acute and serrulate to sheath, or obtuse and smooth near base, transverse mid-section rounded, solid with prominent marginal vascular bundles.
SPIKES	Terminal spike staminate, 1.5-5.0 cm long, slender, linear-cylindric, short-peduncled; lateral spikes 1-3, pistillate, aggregate or approximate, 2.0-3.0 cm long, subglobose, sessile or short-peduncled; bracts long-sheathing, foliaceous, considerably exceeding inflorescence.
SCALES	Pistillate scales hyaline, midrib darker, green, broadly trinervate, costa slightly excurrent and serrulate dorsally at summit; considerably shorter and narrower than perigynium, ovate-lanceolate, acuminate. Staminate scales more prominently cuspidate and larger.
PERIGYNIA	Divergent, green, lustrous, 1.0-2.0 cm long, 5.0-8.0 mm wide near base, subulate, biconvex, strongly nerved, base obtuse and spongy; beak 3.0 mm long, margins serrulate, emarginate, the teeth divergent with serrulate suture.
ACHENE	Loosely enveloped by perigynium, stramineous, obovoid, trigonous; style persistent, flexuous or loosely contorted, dark-brown, 0.5-1.0 cm long; stigmas 3, reddish-brown, 0.5-1.0 cm long.

Var. *fernaldii*. Perigynia lanceolate, barely inflated, 3.0-5.0 mm wide.
Forma *ventriosa*. Perigynia conic-ovoid, strongly inflated, 5.0-8.0 mm wide.

DISTRIBUTION	Temperate-boreal, eastern North America.
HABITAT	Alder swamps and mountain maple thickets; occasionally in open balsam fir tuckamore. Has strong hemerophilic tendencies on fluvial soils in disturbed forests.
FORAGE VALUE	Low nutritional value but grazed by horses and cattle; good seed source for birds.



Carex [illegible]

VESICARIAE Tuckerm., Enum. Caric. 13. 1843.

92. CAREX ROSTRATA Stokes, in With. Brit. Pl. ed. 2, 2:1059. 1787; see Fern. Rhod. 48:145. 1946.
92a var. *utriculata* (Boott) Bailey, Mem. Torrey Bot. Club. 1:39. 1889.

ROOTSTOCKS Rhizomes sympodial, creeping, slender; roots dark-brown.

SHEATHS Outer basal sheaths persistent, brown, filamentose; inner basal sheaths pinkish-tinged, sheaths conspicuously transverse-nerved dorsally; inner band hyaline or brown-tinged at concave summit; ligule longer than broad, truncate.

LEAVES Firm, ascending, stramineous to glaucous-green, 0.3-1.0 m long, 0.2-0.8 cm wide, plicate to conduplicate, prominently septate-nodulose, margins serrulate to sheath.

CULMS Erect, 1-few, aphyllopodic, 0.3-1.0 m tall, 1.0-9.0 mm thick above upper sheath, coarse to slender, thickened and spongy at base, equaling or shorter than leaves; sides 4-7 ribbed, septate-nodulose, angles obtuse and smooth below inflorescence, acute and serrulate between spikes, transverse section solid, with conspicuous marginal vascular bundles.

SPIKES Staminate spikes 2-4, erect, to ascending at summit, the terminal spike 0.3-1.0 dm long, subtending spikes about 1/2 as long, slender, linear-cylindric, peduncled, androgynous spikes frequent and intermediate on culm; pistillate spikes 2-4, approximate to subdistant, 1.0-6.0 cm long, thick, linear-cylindric, densely flowered, sessile or short-peduncled; bracts short-sheathing, foliaceous, becoming setaceous, stiffly ascending, exceeding inflorescence.

SCALES Pistillate scales brown, midrib hyaline, broadly trinervate, costa slightly excurrent to cuspidate, longer and narrower than perigynium, lanceolate, acuminate. Staminate scales with broad hyaline margin, erose-margined and obtuse at summit.

PERIGYNIA Stramineous, lustrous, 0.5-1.0 cm long, ovoid, turgid, nerved, substipitate; beak 2.0-3.0 mm long, slender, bidentulate.

ACHENE Closely enveloped by perigynium, fulvous, obovoid, trigonous, substipitate; style persistent, flexuous or contorted, 2.5-5.0 mm long; stigmas 3, reddish-brown, 3.0 mm long.

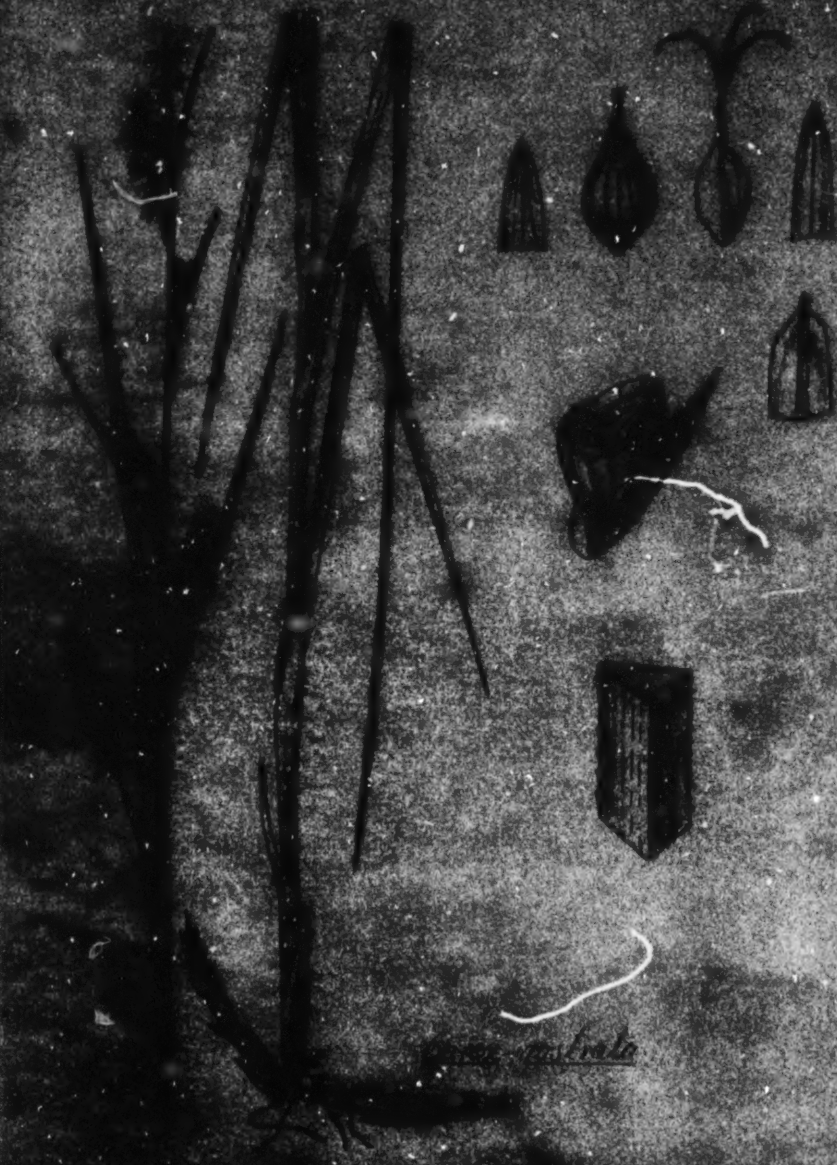
92a var. *utriculata*. Culms 0.5-1.5 m tall; leaves 0.5-1.0 cm wide, flat; pistillate spikes 4-10 cm long, 0.7-1.2 cm thick; perigynia 5-10 mm long, beak emarginate; pistillate scales linear lanceolate, costa excurrent to a short awn mostly exceeding perigynia.

DISTRIBUTION Circumpolar temperate-boreal.

HABITAT Marshes and shallow water in minerotrophic and eutrophic fens. Occasionally at edges of mesotrophic bogs and in peaty soils of alder swamps along shores of rivers.

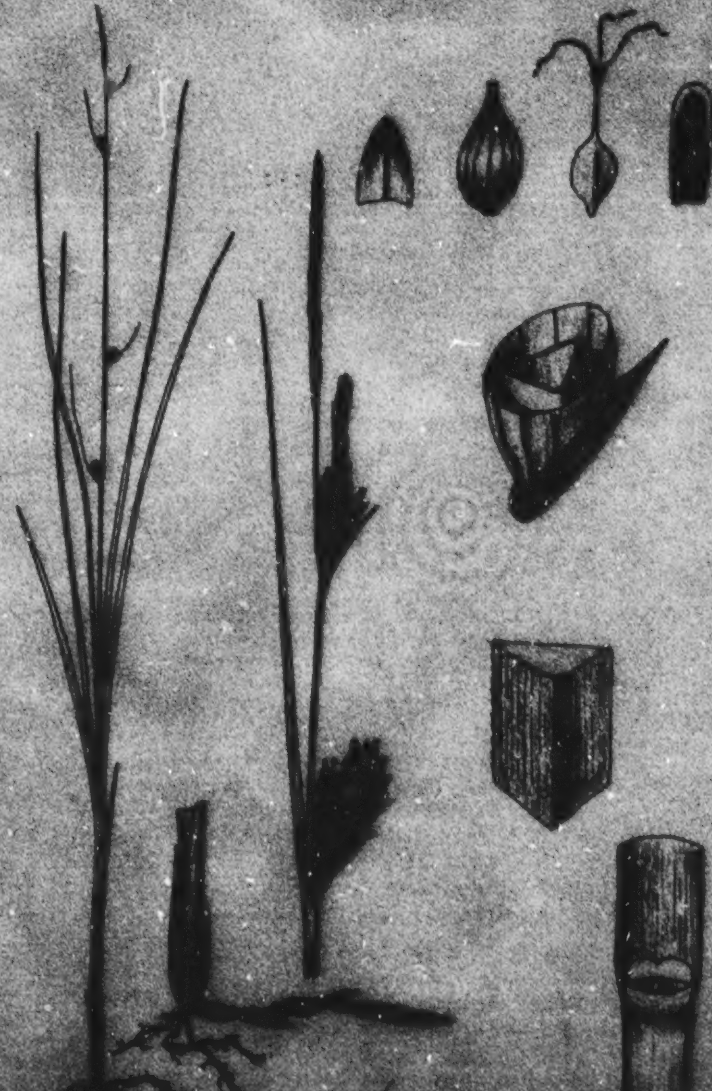
FORAGE VALUE Young shoots highly nutritious even for humans. *Carex rostrata* hay bogs were once very common around Newfoundland until recently, but only a few remain in the Lamaline district on the Burin Peninsula. *Carex rostrata* hay can be harvested and stored at a much higher moisture content than grass hay without spoiling, an important advantage in cool,humid climates. For wildlife, it also rates highly.

CHROMOSOME NUMBER 2n = 60, 72-74, 76, 82.



93. CAREX OLIGOSPERMA Michx., in Fl. Bor. Am. 2:174. 1803.

ROOTSTOCKS	Stolons whitish, stout, elongate, scaly; roots yellow to ferruginous.
SHEATHS	Basal sheaths drab-brown or vinous-tinged, filamentose; upper sheaths inconspicuously transverse-nerved dorsally; inner band hyaline, ladder-fibrillose, summit prolonged, divergent; ligule broader than long, sinuate.
LEAVES	Wiry, ascending or diffuse, light-green, 4.0-5.0 dm long, filiform-involute, not keeled, margins serrulate to sheath, with a hyaline ribbon ventrally.
CULMS	Strict, 1-few, aphyllopodic, 0.2-1.0 m tall, filiform, sides finely-ribbed, angles acute and serrulate near summit, transverse section solid with inconspicuous vascular bundles.
SPIKES	Terminal spike staminate, 1.5-4.0 cm long, slender, linear-cylindric, peduncled; lateral spikes 1-2 (rarely 3), pistillate, or the upper most androgynous, 0.7-2.0 cm long, subglobose to elliptic, sessile or stiped, 3-15 flowered.
SCALES	Pistillate scales brown with hyaline margin, midrib pale-green, broadly trinervate, costa slightly excurrent; equaling body of perigynium, ovate, acuminate. Staminate scales, oblong, obtuse.
PERIGYNIA	Brown, lustrous, 4.0-7.0 mm long, ovoid, turgid, subcoriaceous, nerved, substipitate; beak 1.0-2.0 mm long, suture erose-terete to emarginate.
ACHENE	Loosely enveloped by perigynium, fulvous, obovoid, trigonous, substipitate; style persistent, erect, 2.0-3.0 mm long; stigmas 3, reddish-brown.
DISTRIBUTION	Boreal, eastern and central North America.
HABITAT	Wet sites on oligotrophic and mesotrophic bogs and poor sites on alpine and subalpine slope fens.
FORAGE VALUE	Moderate seed source for birds; apparently not grazed by wildlife despite its abundance.



Carex oligosperma

94. CAREX VESICARIA L., Sp. Pl. 1:979. 1753.

94a var. monile (Tuckerm.) Fern., Rhodora 4:223. 1902.

94b var. distenta Fries, Mant. 3. 1842.

94c var. jejuna Fern., Rhodora 4:223. 1902.

94d var. raeana (Booth) Fern. Rhodora 3:54. 1901.

ROOTSTOCKS	Stolons stout, short-creeping; roots slender and whitish to brown.
SHEATHS	Basal sheaths brown or vinous-tinged, soon filamentose; inner band stramineous, ladder-fibrillose, summit brown-tinged and concave or truncate; ligule longer than broad, acute.
LEAVES	Diffuse to ascending, 0.2-8.0 dm long, 2.0-7.0 mm wide, flat, inconspicuously septate-nodulose, margins sometimes revolute, serrulate to sheath.
CULMS	Loosely cespitose, erect, usually spongy at base, aphyllopodic with 4-10 leaves on lower 2/3, 0.2-1.0 m tall, equaling or exceeding leaves, sides 7-ribbed, angles acuminate and scabrous on upper 1/2, serrulate below, transverse section solid.
SPIKES	Staminate spikes 2-4, approximate, the terminal 3.0-4.0 cm long and peduncled, the subtending lateral 1/2-2/3 as long and sessile; pistillate spikes 1-3, remote from summit, 2.0-6.0 cm long, 5.0-9.0 mm wide, linear-cylindric to linear-clavate, acuminate-tipped, sessile or stiped; bracts sheathless, foliaceous, or the upper setaceous, exceeding inflorescence.
SCALES	Pistillate scales reddish-brown to fulvous with hyaline margins, midrib pale-green, broadly trinervate, shorter and narrower than perigynium, lanceolate-ovate, acute. Staminate scales linear-lanceolate, obtuse with erose-margined summit.
PERIGYNIA	Fulvous to stramineous becoming vinous, lustrous, 3.0-9.0 mm long, ovoid, turgid, nerved, membranaceous, substipitate; beak 2.0 mm long, emarginate, the divergent teeth 1.0 mm long.
ACHENE	Very loosely enveloped by perigynium, fulvous, obovoid, trigonous, substipitate style persistent, flexuous or contorted, yellowish, 2.0 mm long; stigmas 3, brown, 2.5 mm long.

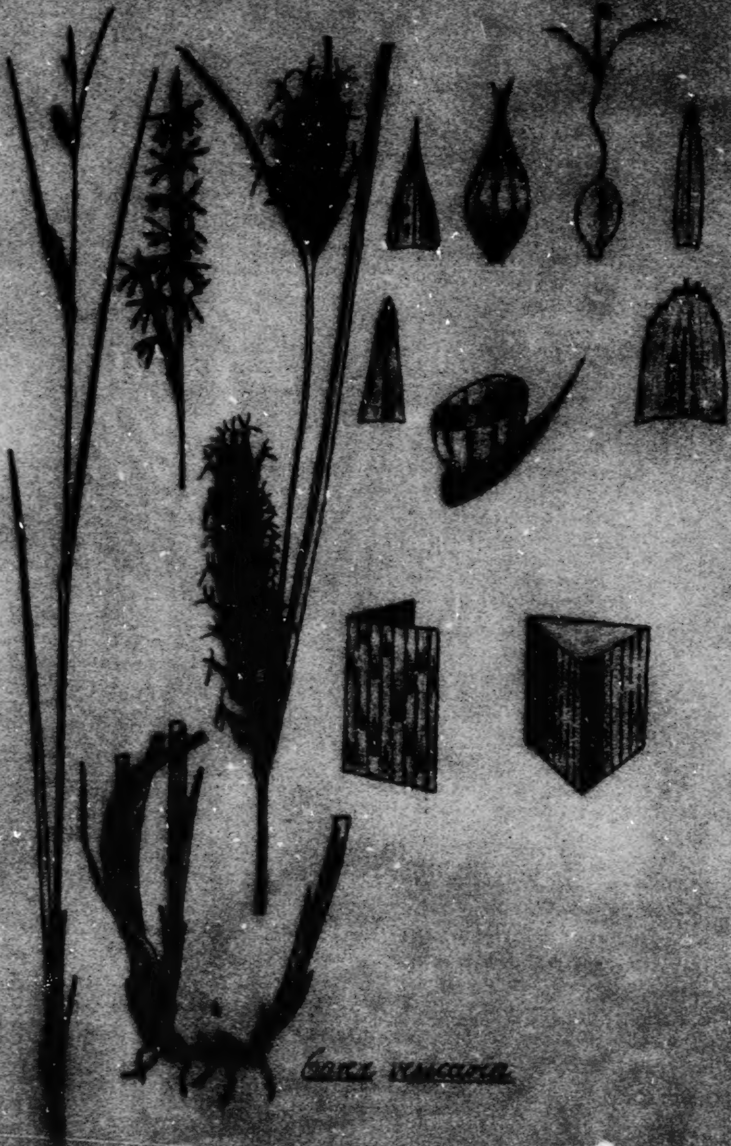
94a var. monile. Pistillate spikes 2-3, 2.0-7.5 cm long, 1.0-1.5 cm thick.

94b var. distenta. Pistillate spikes 1-2, 1.0-2.0 cm long, 1.0-1.5 cm thick.

94c var. jejuna. Pistillate spikes 5.0-8.0 mm long; scales as long as or exceeding perigynia.

94d var. raeana. Pistillate spikes 2, 1-4 cm long, 4-8 mm thick; perigynia slightly inflated, lanceolate, tapering to a beak, 4-6 mm long, 1.5-2.0 mm wide; scales ovate.

DISTRIBUTION	Circumpolar temperate-boreal.
HABITAT	Minerotrophic and eutrophic fens and marshes.
FORAGE VALUE	Low in nutritional value but grazed by domesticated animals and wildlife; reasonable seed source for birds.
CHROMOSOME NUMBER	2n = 74.


Carex vesicaria

95. CAREX SAXATILIS L., Sp. Pl. 1:976. 1753.

95a var. *miliaris* (Michx.) Bailey, Bot. Gaz. 9:120. 1884.

95b var. *major* Olney, in Bot. King's Exp. 370. 1871.

95c var. *rhomalea* Fern., Rhodora 3:50. 1901.

ROOTSTOCKS	Rhizomes brown to vinous, short; roots fulvous, elongate, dense.
SHEATHS	Basal sheaths brown to vinous-tinged, becoming filamentose, covered with marcescent leaves; upper sheaths tight, inner band hyaline, ladder-fibrillose, concave at summit; ligule longer than broad, acute to acuminate, obtuse at apex.
LEAVES	Diffuse to ascending, 2.0-6.0 dm long, 2.0-5.0 mm wide, flat to involute and strongly keeled ventrally, septate-nodulose, margins scabrous to sheath.
CULMS	Loosely cespitose, erect, aphyllopodic with 3-7 leaves, 2.0-8.0 dm tall, filiform, equaling or exceeding leaves, sides finely-ribbed, angles acuminate and scabrous on upper 1/2, transverse section solid with prominent marginal vascular bundles.
SPIKES	Staminate 1-3, the terminal 1.5-4.0 cm long, slender, linear-cylindric, peduncled, subtending laterals 1/4-1/2 as long, linear-cylindric to clavate, sessile; pistillate spikes 1-3, remote from summit, distant or approximate to each other, 1.0-3.5 cm long, 0.5-1.2 cm wide, linear-cylindric, to elliptic, sessile and ascending or peduncled and cernuous; bracts short-sheathing, foliaceous or the upper setaceous lowermost exceeding inflorescence.
SCALES	Pistillate scales brown to blackish, with hyaline margin, midrib pale-green, slenderly trinervate, costa reaching to near summit; equaling or 1/2 as long as perigynium, ovate, acuminate. Staminate scales usually much paler, longer and narrower, obtuse at apex.
PERIGYNIA	Stramineous becoming vinous at maturity, lustrous, 3.0-5.0 mm long, ovoid, biconvex, nerveless ventrally, nerved dorsally, substipitate; beak abrupt, 0.5-1.0 mm long, bidentate, orifice erose margined.
ACHENE	Tightly enveloped by perigynium, yellowish, ovoid, lenticular, substipitate; style persistent, flexuous or contorted, yellowish, 1.0 mm long; stigmas 2 or infrequently 3, blackish, 2.0 mm long.

95a var. *miliaris*. Base of culms 2-4 mm thick, culms 0.5-4 dm tall, pistillate spikes, 0.4-2 cm long, staminate spikes 1, rarely 2, perigynia 2-3 mm long 'ascending'.

95b var. *major*. Base of culms 3-7 mm thick, culms 2-7 dm tall, pistillate spikes 1-3 cm long, always cernuous, staminate spike 1, or rarely with additional sessile onne. Perigynia 3-5 mm long.

95c var. *rhomalea*. Base of culms 3-7 mm thick, culms 2-8 dm tall, pistillate spikes 1-3 cm long, staminate spikes 2-3, perigynia 3-5 mm long, ascending or cernuous.

DISTRIBUTION	Circumpolar arctic-boreal.
HABITAT	Alpine and subalpine slope fens, minerotrophic fens and occasionally in open balsam fir tuckamore.
FORAGE VALUE	Good winter source of forage for wildlife.
CHROMOSOME NUMBER	2n = 80, 86.

LIST OF HYBRIDS

HYBRIDS
(*Reported from Newfoundland)

*Carex X anticostensis (Fern.) Lepage

(C. saxatilis var. miliaris (Michx.) Bailey x C. rostrata Stokes).

Carex bigelowii Torr. & Schw. X C. stylosa C.A. Meyer, ex Boivin, Nat. Can. 94:481. 1967.

Carex X connectens Holmb., Bot. Notis. p. 226. 1929.

(C. limosa L. X C. paupercula Michx.)

*Carex X crinitoides Lepage, Nat. Can. 83:124. 1956.

(C. aquatilis Wahl. X C. crinita Lam.)

Carex X decolorans Wimm.

(C. bigelowii Torr. & Schw. X C. nigra All.)

*Carex X dumanii Lepage, Nat. Can. 83:143. 1956.

(C. paleacea Wahl. X C. salina var. subspathacea (Wormskj.)Tuckerm)

Carex X exsalina Lepage, Nat. Can. 83:133. 1956.

(C. bigelowii Torr. & Schw. X C. paleacea Wahl.)

C. X. firmior (Norm.) Holmb. Bot. Notis. p. 226. 1929.

(C. limosa L. X C. rariflora (Wahl.) Smith)

*Carex X gardneri Lepage, Nat. Can. 84:42. 1957.

(C. paleacea Wahl. X C. salina Wahl.)

Carex x grantii Bennett, J. Bot. 35:250. 1897.

(C. aquatilis Wahl. X C. salina var. kattegatensis Fern.)

*Carex X halophila Nyl., Spic. Fl. Fern. 2:21. 1844

(C. aquatilis Wahl. X C. nigra All.)

Carex X halophila Nyl. X C. bigelowii Torr. & Schw., ex Boivin, Nat. Can. 94:482. 1967.

*Carex X. helvola Blytt, ex Fern. & Weig. Rhodora 12:136. 1910.

(C. glareosa Wahl. X C. canescens L.)

Carex X knieskernii Dewey

(C. arctata Boott X C. castanea Wahl.)

*Carex X limula Fries (pro sp) Raymond, Bull. Soc. Bot. Fr. 99:195. 1952.

(C. aquatilis Wahl. X C. bigelowii Torr. & Schw.)

Carex X macilenta Fries, Mant. 3:119. 1842.

(C. canescens L. X C. brunnescens (Pers.) Poir.)

Carex X mainensis Porter, in Britt. Man. p. 193. 1901.

(C. saxatilis var. miliares (Michx.) Bailey X C. vesicaria L.)

Carex X neartica Raymond, Bull. Soc. Bot. Fr. 99:192. 1952.

(C. bigelowii Torr. & Schw. X C. aquatilis Ssp. stans (Drejer) Hulten.

*Carex X neofilipendula Lepage, Nat. Can. 83:123. 1956.

(C. aquatilis Wahl. X C. paleacea Wahl.)

Carex X neomiliaris Lepage, Nat. Can. 84:89. 1956.

(C. aquatilis Wahl. X C. saxatilis var. miliaris (Michx.) Bailey)

Carex X neopaleacea Lepage, Nat. Can. 83:137. 1956.

(C. buxbaumii Wahl. X C. paleacea Wahl.)

Carex X neorigida Lepage

(C. bigelowii Torr. & Schw. X C. salina Wahl.)

Carex X rubens Lepage, Nat. Can. 84:40. 1957.

(C. saxatilis var. miliaris (Michx.) X C. salina Wahl.)

Carex X paleacoides Lepage

(C. glareosa Wahl. X C. paleacea Wahl.)

C. X pannewitziana Figert, Deutsch. Bot. Monatsschr. V:97. 1887.

(C. rostrata Stokes X C. vericaria L.)

Carex X persalina Lepage, Nat. Can. 83:148. 195

(C. salina Wahl. X C. salina var. subspathacea (Wormskj.) Tuckerm.)

•Carex X pieperiana Junge, ex Fernald, Rhodora 35:231. 1933.

(C. flave L. X C. lepidocarpa Tausch.)

•Carex X pseudofulva Fern., Rhodora 35:231. 1933.

(C. lepidocarpa Tausch X C. hostiana D.C.)

•Carex X pseudohelvola Kilm.

(C. cannescens L. X C. mackenziei Krecz.)

Carex X quebecensis Lepage

(C. bigelowii Torr. & Schw. X C. saxatilis var. rhomalea Fern.)

•Carex X quirponensis Fern., Rhodora 28:164. 1926.

(C. norvegica Ssp. inferalpina Hulten X C. atratiformis Britt.)

Carex X rollandii Lepage, Nat. Can. 84:92. 1957.

(C. aquatilis Wahl. X C. nigra (L.) Reichard).

•Carex x saxenii Raymond, Can. J. Res. 28:421. 1950.

(C. paleacea Wahl. X C. salina Wahl.)

Carex X soerensenii Lepage, Nat. Can. 83:145. 1956.

(C. rariflora (Wahl.) Smith X C. salina var. subspathacea (Wormskj.) Tuckerm.)

Carex X spiculosa (Fries) (pro sp) Lepage, Nat. Can. 84:93. 1957.

(C. nigra (L.) Reich. x C. salina Wahl.?)

Carex X stansalina Lepage, Nat. Can. 83:150. 1956.

(C. salina Wahl. X C. aquatilis Ssp. stans (Drejer) Hulten).

Carex X sublimosa Lepage, Nat. Can. 83:139. 1956.

(C. paleacea Wahl. X C. limosa L.)

Carex X. subnigra Lepage, Nat. Can. 84:46. 1957.

(C. nigra All. X C. paleacea Wahl.)

*Carex subreducta Lepage, Nat. Can. 83:135. 1956.

(C. bigelowii Torr. & Schw. C. salina var. subspathacea (Wormskj.) Tuckerm.

*Carex X subsalina Lepage, Nat. Can. 83:127. 1956.

(C. aquatilis Wahl. X C. salina Wahl.)

Carex X substans Lepage, Nat. Can. 83:154. 1956.

(C. aquatilis Ssp. stans (Drejer) Hulten X C. salina var. subspathacea (Wormskj.) Tuckerm.)

*Carex X subviridula (Kukenth.) Fern. Rhodora 35:231. 1933.

(C. flava L. X C. viridula Michx.)

C. X super-goodenoughii (Kük.) Lepage, Nat. Can. 83:146. 1956.

(C. nigra L. X C. salina Wahl.)

*Carex X trichina Fern. Rhodora 35:230. 1933

(C. trisperma Dewey X C. tenuiflora Wahl.)

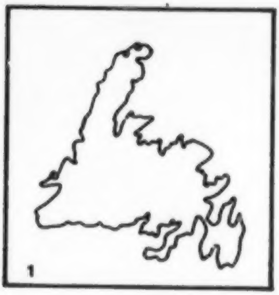
Carex X ungavensis Lepage, Nat. Can. 83:132. 1956.

(C. paleacea Wahl. X C. stylosa var. nigritella (Drejer) Fern.)

*Carex X xanthina Fern. Rhodora 35:230. 1933.

(C. hostiana D.C. X C. flava L.)

DISTRIBUTION
OF
CAREX IN
NEWFOUNDLAND



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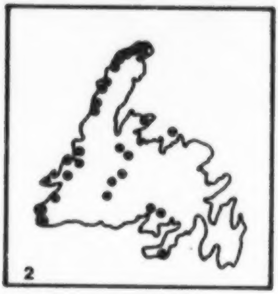

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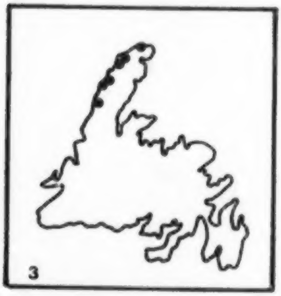

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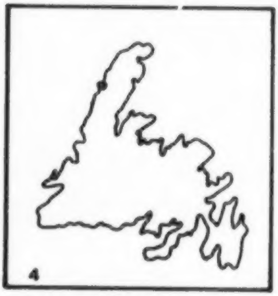

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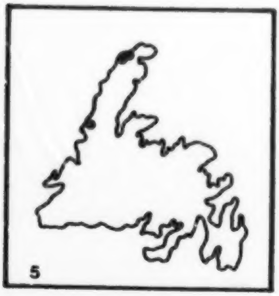

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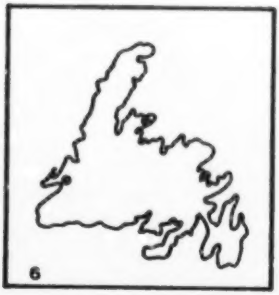

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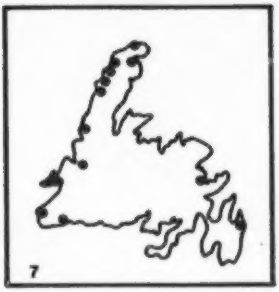

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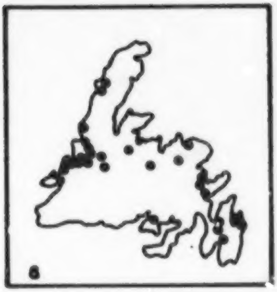

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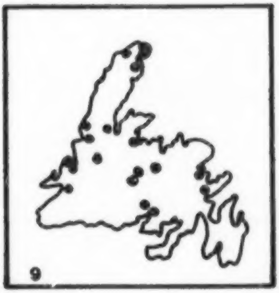

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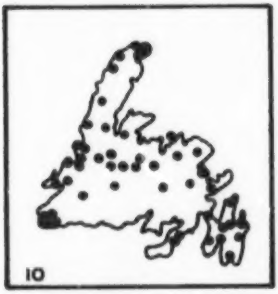

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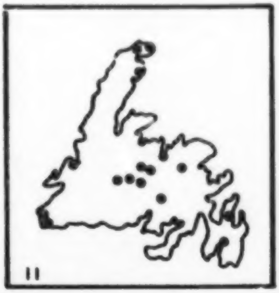

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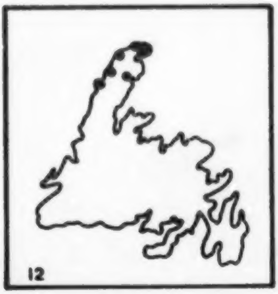

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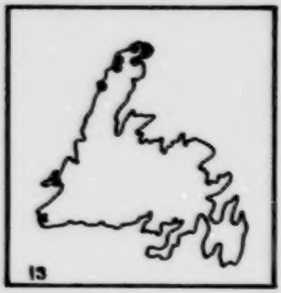

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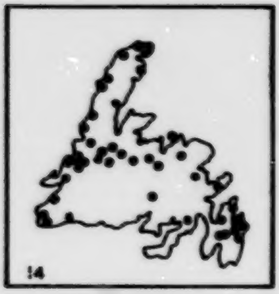

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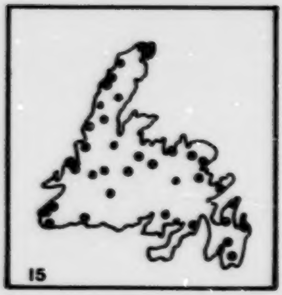

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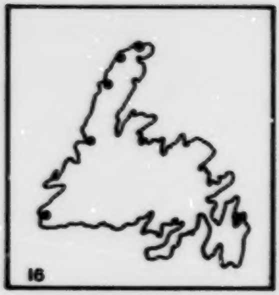

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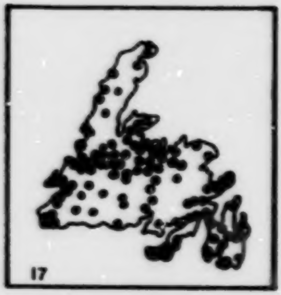

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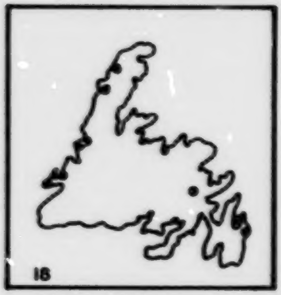

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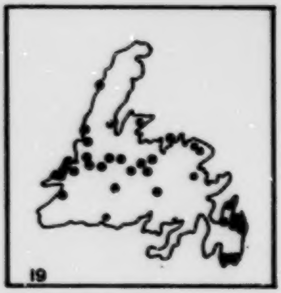

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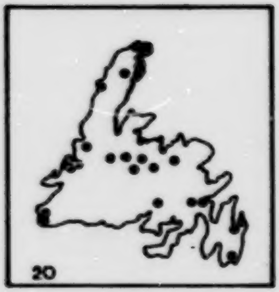

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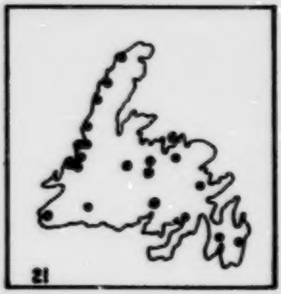

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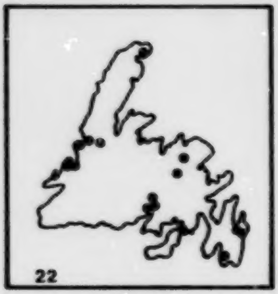

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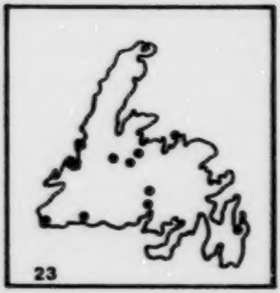

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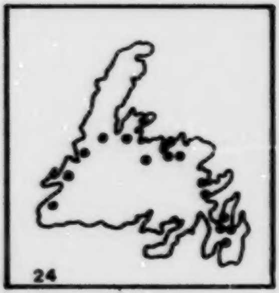

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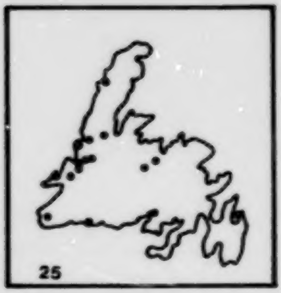
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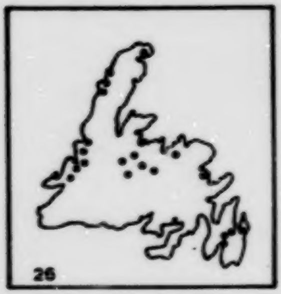
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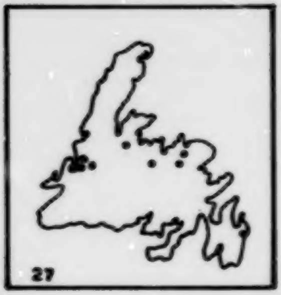
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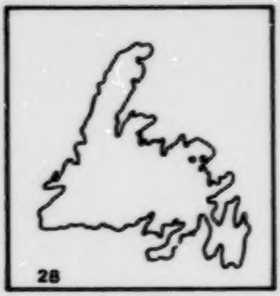
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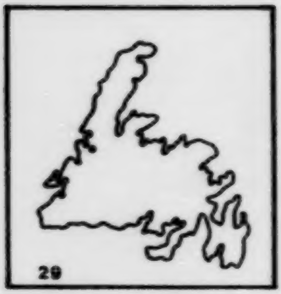
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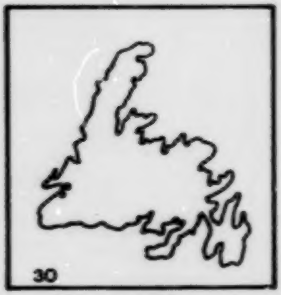
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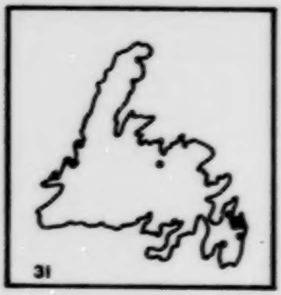

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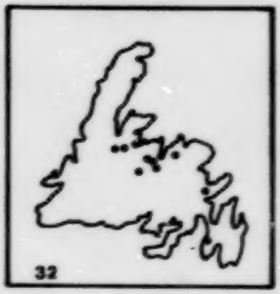

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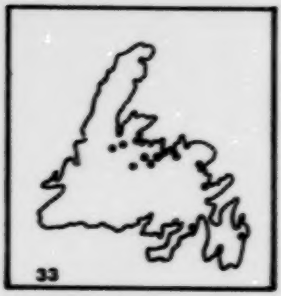

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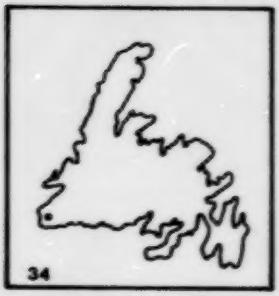

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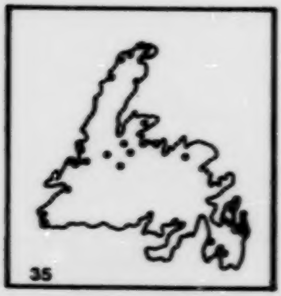

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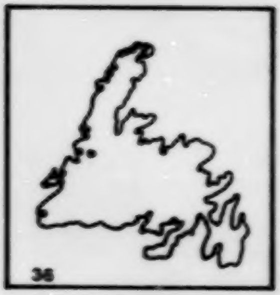

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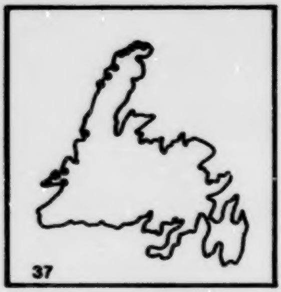

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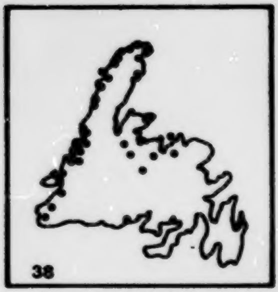

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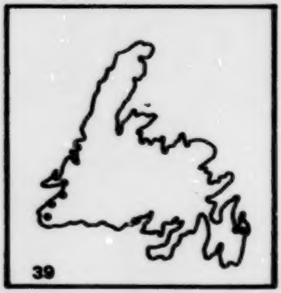

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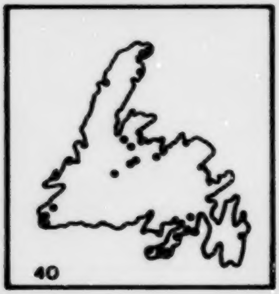

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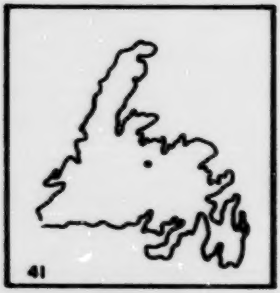

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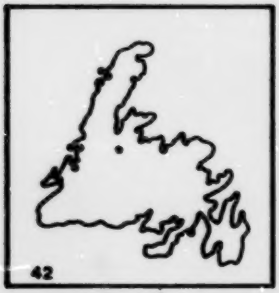

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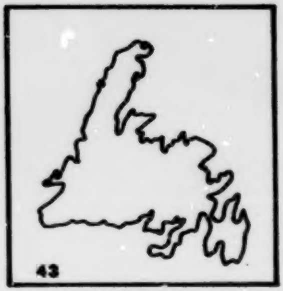

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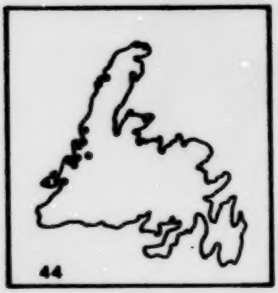

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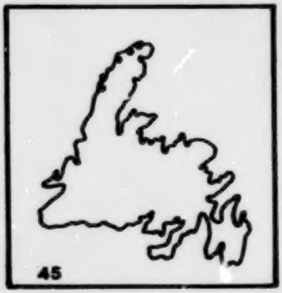

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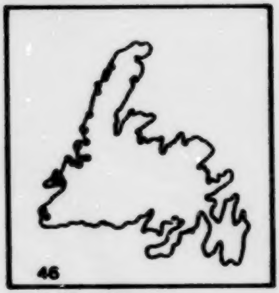

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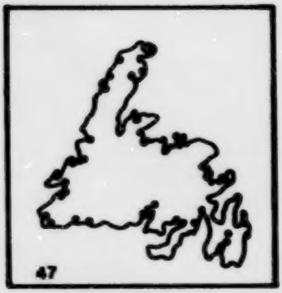

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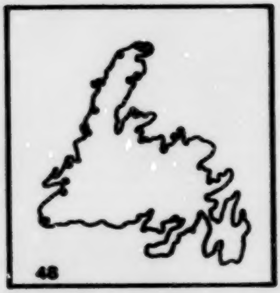

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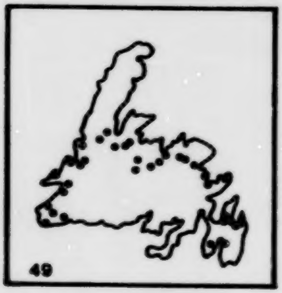

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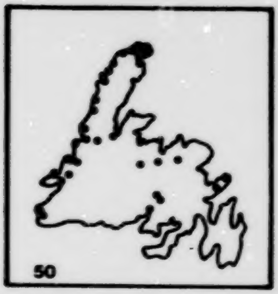

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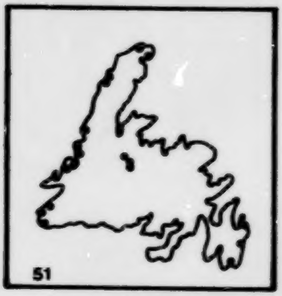

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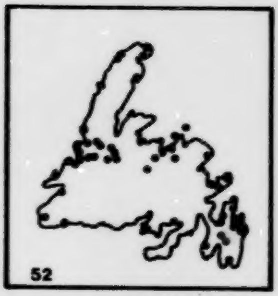

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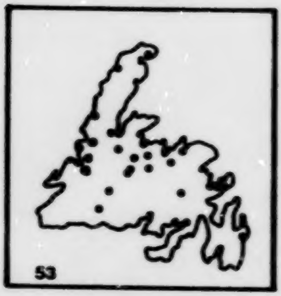

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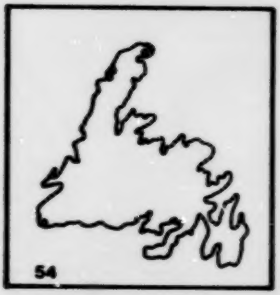

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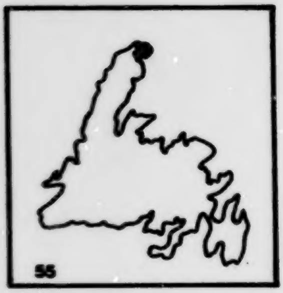

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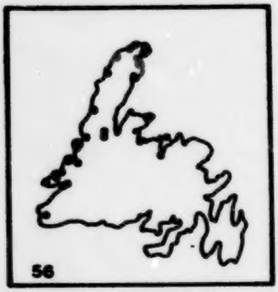

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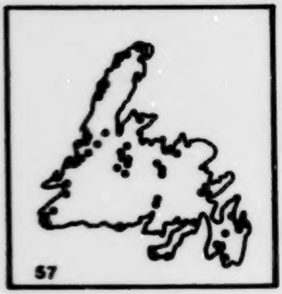

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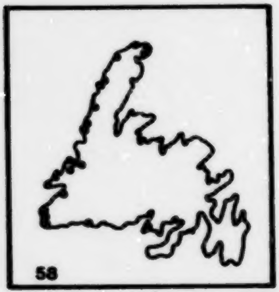

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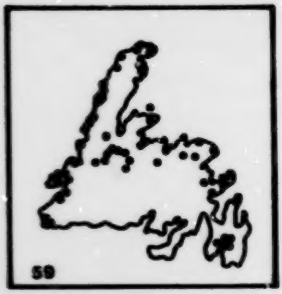

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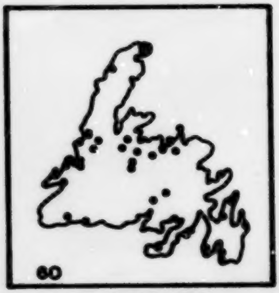

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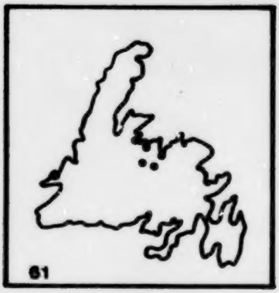
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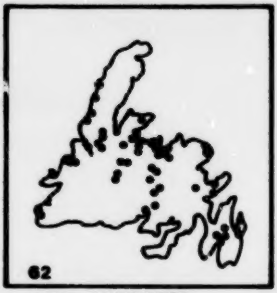
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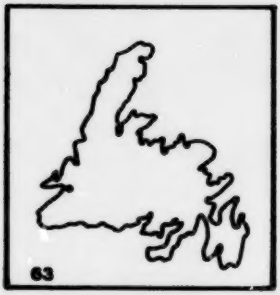
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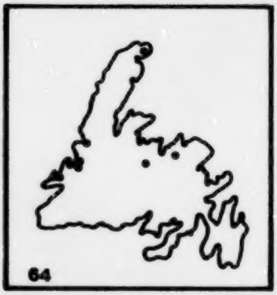
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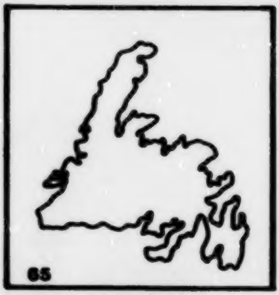
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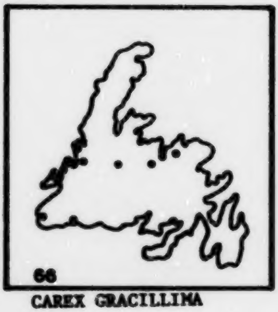
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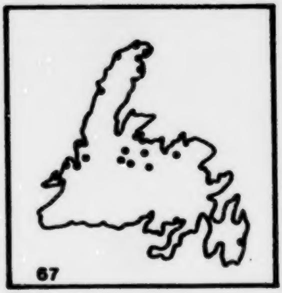
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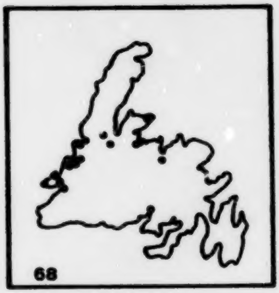
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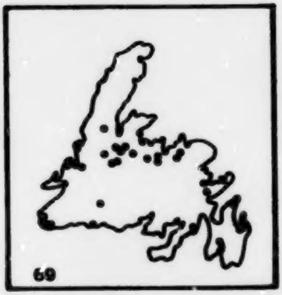
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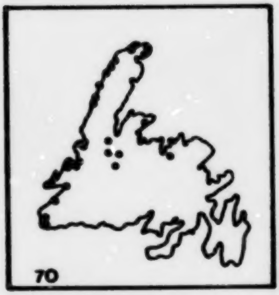
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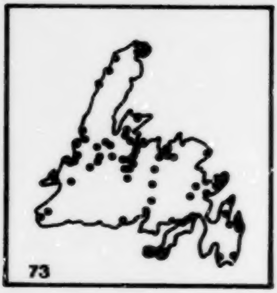
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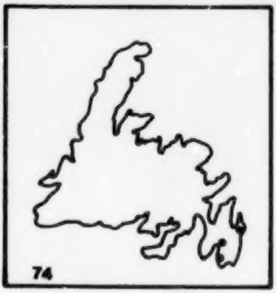
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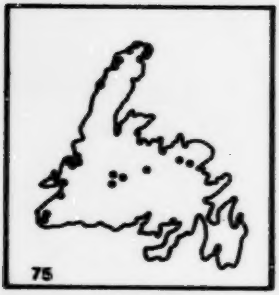
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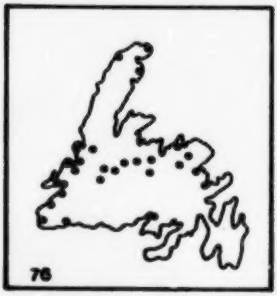
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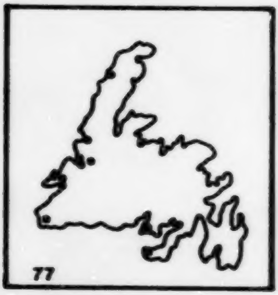
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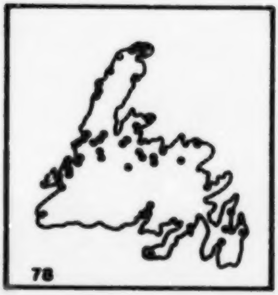
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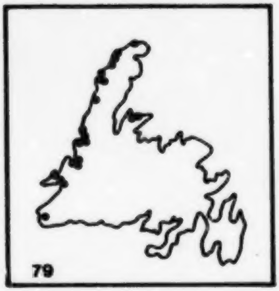

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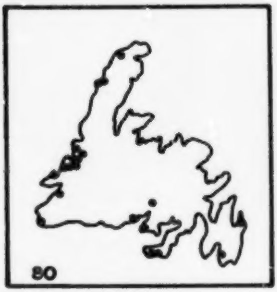

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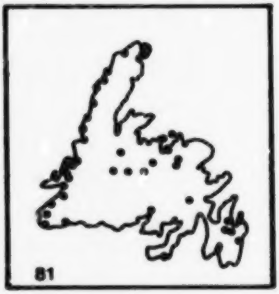

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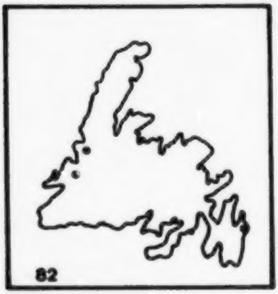

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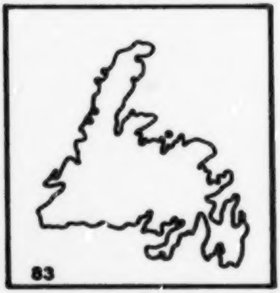

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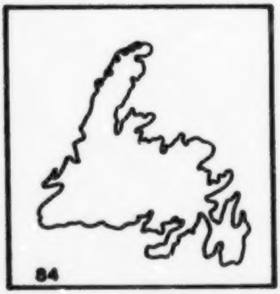

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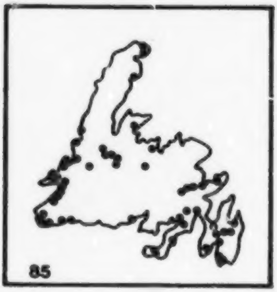

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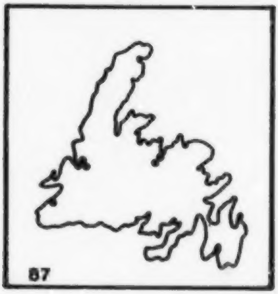

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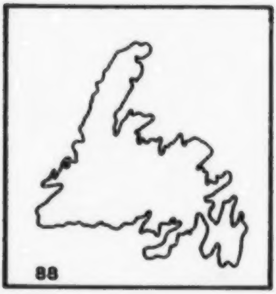

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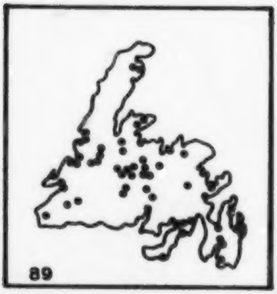

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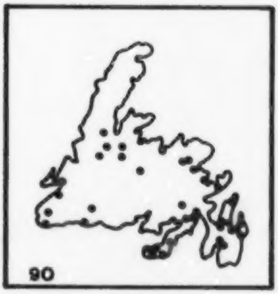

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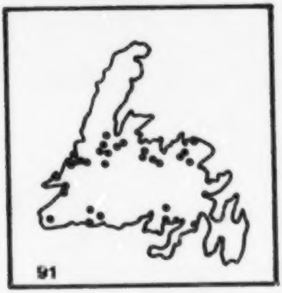

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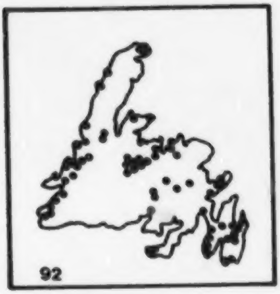

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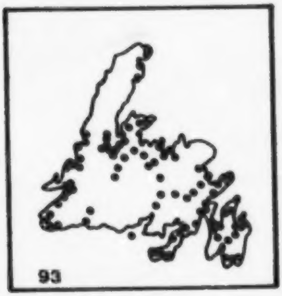

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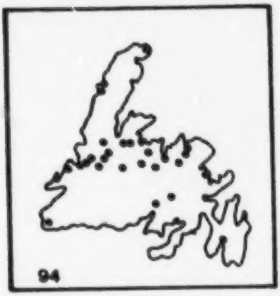

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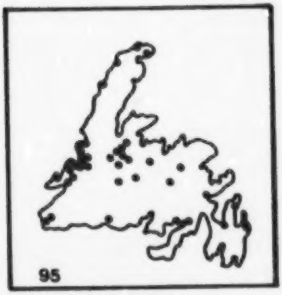

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CAREX SAXATILIS

GLOSSARY

ACHENE. A one-seeded, dry, indehiscent fruit.

ACICULAR. Needlelike; sharp-pointed.

ACUMINATE. Tapering gradually or abruptly from inwardly curved sides.

AGGREGATE. Formed in a cluster.

AMPLEXICAUL. Clasping or surrounding the stem.

ANDROGYNOUS. Having staminate (♂) and pistillate (♀) flowers in the same spike, the staminate above the pistillate.

ANTHER. The pollen-bearing organ of the stamen.

APHYLLOPODIC. The lower leaves bladeless or nearly so.

APICULATE. Forming abruptly to a small tip.

APPRESSED. Pressed together without being united.

ARISTATE. Provided with awns, or with a well-developed bristle.

ARTICULATE. Jointed; separating easily at certain points.

ATTENUATE. Slenderly tapering or prolonged.

AURICLE. Ear-like appendage.

AWN. Bristle-shaped appendage.

BEAK. A firm, prolonged, slender tip.

BIDENTATE. Having two teeth.

BIDENTULATE. Diminutive of bidentate.

BIFID. Forked; divided in two nearly to middle line.

BRACT. A floral leaf; a modified leaf in whose axil a flower arises.

BULBOUS. Like a bulb.

CADUCOUS. Falling off early.

CANESCENT. Greyish; becoming grey.

CAPILLARY. Hair-like.

CAPITATE. Shaped like a head; enlarged or swollen at the tip.

CASTANEOUS. Dark brown; chestnut-colored.

CAUDEX. The axis or stem.

CAULINE. Leaves growing on upper portion of a stem.

CERNUOUS. Drooping; pendulous.

CESPITOSE. Growing in tufts or patches.

CHARTACEOUS. Having the texture of paper.

CILIATE. Marginally fringed with hairs.

CLAVATE. Club-shaped, thickened gradually upwards.

CONCAVE. Curved inwards.

CONDUPLICATE. Double-folded lengthwise.

CONNATE. Joined together.

CONVEX. Curved outwards.

CONVOLUTE. Rolled together lengthwise.

CORIACEOUS. Leathery in texture.

COSTA. Primary vein in mid-rib.

CRENULATE. Margins minutely scalloped.

CULM. The stem of grasses and sedges.

CUNEATE. Wedge-shaped; triangular, with the narrow part at the point of attachment.

CUSPIDATE. Terminating in a sharp firm point.

DECIDUOUS. Falling at maturity, or at end of growing season.

DECUMBENT. Lying on the ground but rising at apex.

DEFLEXED. Abruptly bent or turned downward.

DELTOID. A three-dimensional figure more or less triangular in shape.

DIFFUSE. Widely spreading but not localized.

DILATED. Expanded or flattened.

DIOECIOUS. Having staminate and pistillate flowers on different plants.

DISARTICULATING. To seperate at a joint.

DISTENDED. Extended in one direction; enlarged.

DISTICHOUS. Alternate leaves, so arranged that the first is directly below the third.

DIVARICATE. Widely divergent.

DIVERGENT. Separated from one another.

DORSAL. Pertaining to the back or outer surface.

ECHINATE. Hedgehog-like.

ELLIPSOID. A three-dimensional figure, elliptic in outline.

ELLIPTIC. Nearly oblong but widest across the middle and with curving sides.

EMARGINATE. With a small notch at the apex.

EROSE. Having margins irregularly notched.

EVANESCENT. Vanishing.

EXCURRENT. Having midrib projecting beyond apex.

FASTIGIATE. With branches or linear spikes close to the stem and erect.

FERRUGINOUS. Having the appearance of iron rust.

FIBRILLOSE. Furnished with small thread-like fibres.

FILAMENTOSE. Composed of, or breaking up into, thread-like fibres.

FILIFORM. Thread-like.

FLACCID. Lax or weak; without rigidity.

FLEXUOUS. Curving in a zig-zag manner.

FOLIACEOUS. Having the form or texture of a foliage leaf.

FULVOUS. Yellowish-brown.

FUSCOUS. Greyish-brown.

GLABROUS. With a smooth even surface; not pubescent or hairy.

GLAUCOUS. With a whitish waxy covering.

GLOBOSE. Globe-shaped; spherical or rounded.

GLOMERULE. A condensed cyme of almost sessile flowers.

GRANULOSE. Textured with minute grains.

GRISEOUS. Grey; pearly-grey.

GYNAECANDROUS. Having staminate and pistillate flowers in the same spike, the pistillate above the staminate below.

HISPIDULOUS. Minutely hispid; bristly-hairy.

HYALINE. Colorless or translucent.

IMBRICATE. Having parts overlapping each other like roof tiles.

INDEHISCENT. Not splitting at maturity.

INFLORESCENCE. Method in which the spikes are arranged in axis; flower-cluster of a plant.

INNER-BAND. The membranaceous tissue connecting the margins of leaves at the summit of the sheath in grasses and sedges.

INVAGINATED. Introverted; drawn inwards.

INVOLUTE. With margins rolled inwards, i.e. towards the ventral surface.

KEEL. The ridge on the blade of grasses and sedges.

LACINATE. Cut into narrow lobes or segments; irregularly incised.

LADDER-FIBRILLOSE. Thread-like fibres formed like a ladder.

LANCEOLATE. Lance-like; narrow and tapering to the apex.

LENTICULAR. Shaped like a biconvex lens.

LEUCONEUROS. White-nerved.

LIGULE. A membranaceous outgrowth at the junction of blade and leaf-sheath.

LINEAR. Long and narrow with parallel sides.

LUSTROUS. Shining.

MARCESCENT. Withering but not falling off.

MEMBRANACEOUS. Thin, soft, and pliable; like a membrane.

MONILIFORM. Resembling a string of beads.

MONOPODIAL. A system in which the apical bud continues to form a creeping stem and upright shoots are formed from lateral buds.

MOTTLED. Marked with blotches of different colors.

MUCRONATE. Abruptly terminated with a sharp tip.

OBLANCEOLATE. Inversely lanceolate.

OBOVOID. A three dimensional figure, inversely ovoid in outline.

OBTUSE. Blunt and rounded at end.

OLIVACEOUS. Olive-green color.

ORBICULAR. Orb-shaped; circular.

ORIFICE. Mouth or aperture.

OVATE. Flat and having the outline of an egg.

OVOID. A three dimensional figure, ovate in outline.

PANICULATE. A tuft or bunch of flowers close or scattered.

PAPILLOSE. Covered with glandular hairs with one secreting cell above the epidermal level.

PEDUNCLE. A stem or stalk supporting a flower or fruit.

PENDULOUS. Bending downward from point of origin.

PERIGYNIUM. A fruit-investing urticle in *Carex*.

PERSISTENT. Long continuous and remaining attached.

PHYLLOPODIC. Having the lower leaves with well-developed blades.

PILOCILIATE. Marginally and submarginally fringed with hairs.

PILOGLANDULOSE. Sparsely beset with hairs and glands.

PILOSITY. Sparsely beset with hairs.

PISTIL. The seed-bearing organ of a flower consisting of ovary (achene), style, and stigma.

PISTILLATE. Provided with pistils; female flower.

PLANO-CONVEX. Flat on one surface, outwardly curved on the other.

PLICATE. Pleated; folded as a fan.

PROSTRATE. Trailing on the ground.

PUBERULENT. Diminutive of pubescent.

PUBESCENT. Covered with hairs, especially short, soft, and downlike.

PUNCTATE. Dotted or pitted.

PYRIFORM. Pear-shaped.

RACHILLA. A secondary axis; in *Carex* a small thread-like appendage attached to the base of the achene.

RECURVED. Curved backwards.

REFLEXED. Abruptly bent or turned backwards.

RETRORSE. Turned or directed backwards.

RETUSE. Obtuse with a broad narrow notch in the middle.

REVOLUTE. Margins rolled inward.

RHIZOME. A prostrate, more or less elongate stem, partly or completely beneath the surface of the ground and usually rooting at the nodes.

RHOMBOID. A three dimensional figure with the outline of equilateral oblique-angled shape.

ROSETTE. A cluster of leaves arising in close circles from a central axis.

RUGOSE. With many wrinkles or ridges.

SCARBOUS. Rough to touch.

SCALE. In Carex a flat small external structure subtending the perigynium.

SCARIOUS. Scaly or scurfy; thin, dry, membranaceous.

SEPTATE. Divided by partitions.

SEPTATE-NODULOSE. Divided by minute knob-like structures.

SERRATE. With small sharp teeth pointing towards apex.

SERRULATE. Diminutive or serrate.

SESSILE. Stalkless.

SETACEOUS. Bristle-shaped.

SETOSE. Beset with bristles.

SETULOSE. Diminutive of setose.

SHEATH. Lower part of the leaf enveloping the stem.

SINUATE. Having a wavy indented margin.

SPATHIFORM. Formed like an enveloping leaf or large bract.

SPIKE. A simple inflorescence with sessile flowers along axis.

SQUARROSE. Spreading or recurved at the end.

STAMINATE. Provided with stamens; the male flower.

STIGMA. The apical part of the pistil which receives pollen.

STIPITATE. Having a stipe or short stalk.

STOLON. A creeping stem or runner capable of developing rootlets and ultimately forming new individuals.

STOLONIFEROUS. Producing trailing shoots above ground.

STRAMINEOUS. Dull yellow, mixed with white; straw-colored.

STYLE. Slender upper part of pistil supporting stigmas.

SUBULATE. Awl-shaped; very narrow and tapering gradually from the base.

SULCATE. Longitudinally grooved or furrowed.

SUFFUSED. Tinged; overspread.

SUTURE. A junction or seam of union.

SYMPODIAL. A system in which the apical bud has finite growth in the form of an ariel shoot and lateral buds from its base produce further creeping stems.

TERETE. Circular in transverse section.

TOMENTULOSE. Covered closely with minute matted hairs or fibers.

TRIFID. Clefted to form three.

TRIGONOUS. A three dimensional figure, triangular in outline.

TRINERVATE. Three-nerved.

TRUNCATE. Cut squarely across at the apex.

TURGID. Swollen; inflated.

VASCULAR BUNDLES. A group of special cells acting as vessels or duct for transporting sap.

VENTRAL. Pertaining to the inner surface.

VINOUS. Red wine-colored.

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POOR

QUALITY

ORIGINAL